

Power and automation products and services

Global product offering for data center applications

ABB supplies data center owners, operators, OEM partners, architecture/engineering firms, general contractors and EPC consultants with a wide range of offerings to automate data centers and make them more powerful, agile, and efficient. We provide a wide range of industrial-grade products, integrated solutions and expertise to ensure data centers operate with optimum reliability and benefit from savings in installation, energy, space and maintenance.

Product / Offering	Benefits and features
<p data-bbox="108 595 231 618">Substations</p> <p data-bbox="108 624 391 647">Substations & electrification</p> 	<p>The competitive energy market requires innovative and reliable solutions for effective integration of power from conventional and renewable generation plants, and efficient transmission and distribution to residential, commercial and industrial consumers. Comprehensive domain knowledge, global experience and continuous innovation enable us to provide optimized turnkey solutions and engineered equipment packages. Our worldwide presence ensures customer support throughout the lifecycle of the substation. From ultra-high voltage transmission substations to industrial electrification projects, ABB is a partner you can rely on.</p>
<p data-bbox="108 898 359 920">Distribution transformers</p> <p data-bbox="108 927 367 949">MV Dry-type transformers</p> 	<p>Dry-type medium voltage transformers, available with ratings up to 63 MVA and 72 kV are an excellent solution for data center substations. Virtually maintenance free, with extremely low fire risk, they can also be placed very close to the supplied load, if a dedicated installation should be required. Increased safety for operation with vacuum circuit breakers is provided by ABB's TVRT (Transient Voltage Resistant Transformer) proprietary solution. Additional features are very high energy efficiency, extreme flexibility regarding terminals arrangements, customized accessories and enclosures.</p>
<p data-bbox="108 1200 359 1223">LV Dry-type transformers</p> 	<p>Dry-type low-voltage transformers are used for both indoor LV distribution units feeding local switchboards with power ratings of approx. 500-2500 kVA and for Power Distribution Units or Remote Panel Panels, providing galvanic isolation to the server loads. Tailored solutions (from core & coils to complex enclosures, various cooling options, configurable reactance, terminals configuration, special taps and more) are available in order to best suit the customers' requirements.</p>
<p data-bbox="108 1413 316 1435">Modular substations</p> <p data-bbox="108 1442 199 1464">E-house</p> 	<p>Metal enclosed buildings providing greater safety, easier installation, maintenance and engineering, and on site testing – all contributing to cost reductions.</p>
<p data-bbox="108 1561 375 1583">Skid-mounted substations</p> 	<p>A prefabricated and economic option with easy access to equipment, which normally includes a medium-voltage section, transformer and low-voltage equipment. The skid mounted substation enables a huge reduction in installation time, including the on-site wiring and testing activities.</p>
<p data-bbox="108 1709 422 1731">Compact secondary substation</p> 	<p>Compact secondary substations are prefabricated substations, which include a low-voltage switchboard, transformer and medium-voltage switchgear. CSS is internal arc tested for higher safety. ABB CSS portfolio is covered with different enclosure material, including steel, concrete, and glass fiber reinforced polyester.</p>

Product / Offering	Benefits and features
<p data-bbox="108 120 555 136">Medium-voltage primary distribution</p> <p data-bbox="108 143 264 165">UniGear Digital</p> 	<p data-bbox="560 143 1513 293">UniGear Digital is an innovative solution based on market-leading industry-standard air-insulated medium-voltage switchgear called UniGear and makes full use of ABB's Relion® protection and control relays, IEC 61850 communication protocol and is combined with the advantages of sensor technology. All this leads to an advanced switchgear solution addressing important requirements of the future:</p> <ul data-bbox="560 300 906 443" style="list-style-type: none"> - Flexibility - Increased process efficiency - Lower cost of operation - Maximized integration - Reliability and safety
<p data-bbox="108 479 328 501">Motor control centers</p> 	<p data-bbox="560 479 767 535">UniGear MCC up to 12 kV, 50 kA</p> <p data-bbox="560 542 1513 656">Designed for the highest degree of safety and reliability, the UniGear MCC provides for maximum ease of use. All operations and maintenance actions are made from the front of the panel, which is equipped with mechanical safety interlocks between the vacuum contactor and earthing switch.</p> <ul data-bbox="560 663 1246 779" style="list-style-type: none"> - Slim and compact panel only 400 mm wide - Wide range of applications - Fused vacuum contactor with magnetic actuator - Fitted with safety interlocks and visible earthing connection
<p data-bbox="108 815 363 837">Gas insulated switchgear</p> 	<p data-bbox="560 815 762 871">ZX family up to 42 kV, 40 kA</p> <p data-bbox="560 878 1345 900">GIS provides ultimate protection to medium-voltage electrical distribution</p> <ul data-bbox="560 907 1513 1081" style="list-style-type: none"> - 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 in particular at higher voltage levels - Easy "plug & play" installation
<p data-bbox="108 1117 405 1173">VD4 (ADVAC) medium voltage circuit breakers</p> 	<p data-bbox="560 1117 1513 1232">Maximize your productivity with reduced downtimes with ABB's flagship product family of VD4 circuit breakers for primary and secondary protection, with a global installed base of over 1.5 million units and 3 times higher performance than the market standard.</p> <p data-bbox="560 1238 1458 1294">Optimize your investment with the most compact medium-voltage circuit breaker technology available.</p> <p data-bbox="560 1301 1493 1384">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. up to 46 kV, up to 4000 A, up to 63 kA</p> <p data-bbox="560 1417 1214 1440">* ADVAC as ANSI/IEEE specific productline for primary distribution available</p>
<p data-bbox="108 1476 501 1505">Medium-voltage secondary distribution</p>	
<p data-bbox="108 1512 459 1534">Air insulated secondary switchgear</p> 	<p data-bbox="560 1512 1513 1568">UniSec indoor Air-Insulated switchgear for Medium Voltage secondary distribution up to 24 kV.</p> <p data-bbox="560 1574 1513 1749">UniSec metal-enclosed air-insulated 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.</p>
<p data-bbox="108 1783 472 1805">Gas insulated secondary switchgear</p> 	<p data-bbox="560 1783 1513 1839">SafeRing / Safeplus is a SF6 insulated ring main unit / Compact switchgear platform for the secondary distribution network up to 40,5kV.</p> <p data-bbox="560 1845 1513 1960">Together, SafeRing/ SafePlus provides a complete, flexible and compact switchgear system solution. It is a completely sealed system with a stainless steel tank containing all the live parts and switching functions. This ensures a high level of reliability as well as personnel safety and a virtually maintenance-free system.</p>

Product / Offering	Benefits and features
<p data-bbox="108 120 327 136">Protection and safety</p> <p data-bbox="108 143 209 159">Is-Limiter</p> 	<p data-bbox="560 143 1193 159">The ultra-fast solution for handling a short circuit current.</p> <p data-bbox="560 174 1513 443">In short-circuit-fault conditions this fast-acting switching device triggers a small charge to open the main conductor, which is designed to carry high-operating currents in normal conditions. The short-circuit current commutates to a parallel fuse with high breaking capacity, which limits the short-circuit current during the first rise within extremely short times. The Is-Limiter is a unique solution to limit short-circuit currents up to 210 kA rms while handling operation currents up to 4000 A. The wide range of applications, up to 40.5 kV includes power supplies and industry applications through to special applications such as platforms, IPP's or applications with ultra-fast switching requirements.</p> <p data-bbox="560 450 1513 533">Considering the Is-Limiter on the early engineering phase of a new project or on the extension of an existing system, the Is-Limiter is able to offer technical and economic benefits to our clients.</p>
<p data-bbox="108 568 432 584">Ultra-Fast Earthing Switch UFES</p> 	<p data-bbox="560 568 1050 584">Active internal arc protection for switchgear.</p> <p data-bbox="560 629 1513 869">Innovative arc flash mitigation in less than 4 ms: the highest possible level of arc flash protection for personnel and equipment, maintenance of secure power supply and the reduction of production stoppages. The occurrence of an arc fault, the most serious fault within a switchgear system, is mostly associated with extremely high thermal and mechanical stresses in the area concerned. A new, active arc fault protection system is based on the know-how gained from decades of experience with the ABB vacuum interrupter and IS-limiter technology. This latest arc fault mitigation technology now effectively helps avoid these negative effects should a fault occur.</p> <p data-bbox="560 898 1513 1077">The ultra-fast earthing switch of the UFESTM-type is a combination of devices consisting of an electronic unit and the corresponding primary switching elements, which initiate a 3-phase short-circuit to earth in the event of a fault. The extremely short switching time of the primary switching element in conjunction with the rapid and reliable detection of the fault, ensures that an arc fault is extinguished almost immediately after it arises (Extinguishing time < 4 ms after detection).</p>
<p data-bbox="108 1106 576 1122">Medium-voltage relays/distribution automation</p> <p data-bbox="108 1137 188 1153">Relion®</p> 	<p data-bbox="560 1137 1513 1317">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.</p> <p data-bbox="560 1323 1437 1346">Features supporting high situational awareness and communication availability:</p> <ul data-bbox="560 1352 1513 1532" style="list-style-type: none"> - 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
<p data-bbox="108 1554 204 1570">COM600</p> 	<p data-bbox="560 1554 1513 1615">Web server functionality providing access to substation processes, operations and relays via a web browser (web HMI)</p> <p data-bbox="560 1621 1305 1644">Substation Automation function and its features enabled by default</p> <ul data-bbox="560 1650 1321 1830" style="list-style-type: none"> - 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

Product / Offering	Benefits and features
<p data-bbox="108 120 421 136">Low-voltage power distribution</p> <p data-bbox="108 143 408 197">MNS conventional – ANSI/IEC power distribution switchgear</p> 	<p data-bbox="560 143 1513 203">MNS conventional is ABB's global solution for power distribution up to 690 V / 6300 A / 250 kA (IEC) and 600 V / 5000 A / 100 kA (ANSI) respectively.</p> <p data-bbox="560 210 1513 322">With options for fixed, plug-in and withdrawable breakers and modules and top or bottom power cable and bus duct connections, MNS offers unrivalled flexibility. MNS is fully arc-proof as per the applicable IEC and ANSI/UL standards, respectively, thus setting the standard for operator and equipment safety.</p> <p data-bbox="560 329 1513 383">The maintenance-free bus bar design and its withdrawable Emax 2 circuit breaker help minimize maintenance and unscheduled downtime.</p>
<p data-bbox="108 416 395 470">MNS R – Rear access power distribution switchgear</p> 	<p data-bbox="560 416 1513 477">MNS R is a rear-accessible variation of MNS, ABB's global solution for power distribution. It offers top performance up to 690 V / 8000 A / 150 kA.</p> <p data-bbox="560 483 1513 544">With up to four breakers stacked in a vertical section and innovative distribution feeder arrangement, MNS-R offers significant footprint reduction.</p> <p data-bbox="560 551 1513 611">Flexibility is ensured through top and bottom power cable and bus duct connections and the ability to mount the main bus bars in top, bottom or central.</p> <p data-bbox="560 618 1513 685">MNS-R is arc-proof and offers fully segregated power cables. Service continuity is guaranteed through withdrawable power circuit breakers and segregation form up to form 4 b (IEC) and form 4 type 7 (BS) respectively.</p>
<p data-bbox="108 712 507 766">MNS-Up – Integrated power supply solution for mission-critical applications</p> 	<p data-bbox="560 712 1513 801">MNS-Up is a fully integrated combination of two of ABB's key products for data centers and other mission-critical applications – our MNS power distribution switchgear and our ConceptPower DPA500 UPS.</p> <p data-bbox="560 808 1513 920">MNS-Up does away with external cable or bus duct connections between switchgear, bypass and UPS, thereby minimizing the footprint and reducing installation and commissioning time. Delivered as a completely factory-tested assembly, MNS-Up also offers the highest level of quality.</p> <p data-bbox="560 927 1513 1039">MNS-Up is scalable in 100 kW increments up to 3 MW, allowing users to adapt the power distribution solution to their actual needs and pace their investment. Flexibility is further enhanced by options for installation in a straight line, back-to-back or in L- or U-shape to optimize room utilization.</p> <p data-bbox="560 1046 1513 1137">ABB's exclusive Decentralized UPS Paralleling Architecture (DPA™) with N+1 redundancy at module level ensures service continuity as well as easy, quick and safe replacement.</p>
<p data-bbox="108 1167 354 1189">Main distribution boards</p> <p data-bbox="140 1196 331 1218">System pro E power</p> 	<p data-bbox="560 1167 1513 1346">System pro E power is the ABB solution for main distribution switchboard with rated current up to 6300 A and short-circuit current up to 120 kA. It meets all types of installation requirements, degrees of protection, and the electrical and mechanical specifications. ABB System pro E power provides complete solutions for main power distribution in infrastructure and industries in accordance with the Standard IEC 61439. In addition, it guarantees full compatibility with all other ABB products.</p>
<p data-bbox="108 1375 331 1397">Sub distribution board</p> <p data-bbox="140 1404 437 1426">System pro E energy – TwinLine</p> 	<p data-bbox="560 1375 1513 1576">With TwinLine N 55 we have a perfect system in achieving space savings for RPP (Remote Power Panels). TwinLine N 55 is a welded system up to 850A, with protection class I and II, IP rate 55. All in accordance to IEC 61439 and DIN EN 61439 Parts -1, -2 and -3. Continuity is the guiding principle for these wall-mounted and floor standing cabinets for distribution assembly – from the degree of protection, over the ease of installation, to the wide range of portfolio we can meet all requirements in the field.</p> <p data-bbox="560 1583 1513 1644">System intelligence comes as standard with TwinLine in combination with System pro E combi – CombiLine modules.</p> <p data-bbox="560 1650 1513 1688">TwinLine offers unlimited possibilities for all internal combinations.</p>
<p data-bbox="108 1695 300 1718">Automation boards</p> <p data-bbox="140 1724 277 1747">System pro E control – IS2</p> 	<p data-bbox="560 1695 1513 1807">System pro E control – IS2 is the ABB range of metal structures and boxes for industrial automation and controlgear switchboards compliant to several international standards such as the IEC 62208, to the new IEC 61439-1-2 and UL 50.</p>

Product / Offering

Emax 2 circuit breakers



Benefits and features

ABB 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 applications 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. Installing Emax 2 power circuit breakers in data center could result in footprint savings of 20% for the switchboard, providing additional square meters for IT equipment.

Emax 2 is the first low voltage circuit breaker with integrated automatic transfer switch logic managing the supply from the main line to a local generator line in case of faulty conditions in the utility network.

Emax 2 new functions maximize service continuity and enable to reduce by up to 30% the switchgear

Tmax circuit breakers



ABB's molded case circuit breakers guarantee an extremely high performance level while being progressively smaller in size, simple to install and able to provide increasingly better safety. Our Tmax XT range is complete with four frame sizes: XT1, XT2 up to 160 A, and XT3, XT4 up to 250 A. Our Tmax T range completes the offering from 320 A up to 1600 A.

SlimLine XR - Switch disconnector 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.

SMISSLINE TP



Being the world's first pluggable socket system, SMISSLINE TP ensures that load-free devices and components can be snapped on and off under voltage without the need for additional personal protective equipment to guard against electrical hazards. Saving time thanks to the easy plug-in system and saving space devices during first installation and maintenance, thanks to the vertical installation of the bus-bars socket. The switchboard is easy and quick to maintain since the input wiring is already integrated in the plug-in socket system, thus the installation is better arranged and tidier, making it possible for non-qualified personnel to check. All the above mentioned benefits ensure maximum flexibility, expandability and availability.

Current and voltage sensors



As an expert in low-voltage and control systems, we offer sensors that can handle rough applications and combine excellent accuracy, reliability and robustness.

Power distribution units

Cyberex® PDU

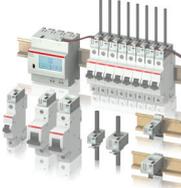


The Cyberex PDU combines flexible output distribution and a large array of transformer options to provide the most versatile PDU offering in the industry. Features include touch safe, selectively coordinating, current limiting breaker options, along with energy efficient transformers. Add Cyberex's Circuit Management System and take complete control of your data center's power.

MNS PDU^{PRO}



MNS PDU is a power distribution panel based on the MNS platform. It delivers continuous power and energy monitoring at rack-level. With its increased current carrying capacity vs. conventional PDU's, MNS-PDU allows for space-saving and more economic data center build-out. MNS PDU consists of incoming ACB sections and outgoing MCCB sections with options for fuses, integrated static transfer switches, active harmonic filters and complete monitoring solutions. MNS-PDU is designed around ABB's unique finger-safe multi-function wall that separates the devices from the bus bar. In line with the underlying theme of maximized operator safety MNS-PDU uses ABB's touch-proof SMISSLINE-TP plug & socket system. Flexibility is another key benefit of MNS PDU with its scalable and modular design using "plug as you grow" approach.

Product / Offering	Benefits and features
<p data-bbox="108 120 395 136">Remote Power Panels (RPP)</p> <p data-bbox="108 143 443 159">Configurable remote power panel</p> 	<p data-bbox="560 143 1513 331">ABB's configurable Remote Power Panel (RPP) helps to meet the demands of power-intensive applications, delivering unsurpassed power monitoring and distribution with up to 240 poles in a safe, reliable, space-saving footprint. The RPP is the ideal solution for data center engineers, saving the time for planning and drawing of the RPP. The preconfigurable RPP can dramatically reduce the certification costs and ensure continuous power to critical applications.</p>
<p data-bbox="108 360 300 376">RPP from Cyberex</p> 	<p data-bbox="560 360 1513 479">Today's data centers require the highest level of reliability and performance. The Cyberex RPP Series provides the flexibility to expand your data center distribution capabilities. Fed from your existing PDM, the RPP readily provides up to (4) 42 circuit output panelboards and (4) source breakers.</p>
<p data-bbox="108 517 448 568">MNS RPP – Power distribution for mission-critical applications</p> 	<p data-bbox="560 517 1513 869">MNS RPP is a scalable remote power panel with up to 168 branch circuits with branch circuit monitoring and optional main feeder circuit management. It offers continuous power and energy monitoring at rack-level. An optional upgrade to MNS iRPP offers further enhanced branch-level power monitoring / management. MNS RPP can be configured for top or bottom cable entry, making it suitable for both, non-raised and raised floor installation. MNS-RPP uses ABB's touch-proof SMISLINE-TP plug & socket system, offering unparalleled operator safety. Hot-swappable and -expandable design increase flexibility and minimize unwanted downtime.</p>
Protection and safety	
<p data-bbox="108 911 300 927">Arc Guard System</p> 	<p data-bbox="560 911 1513 1115">The Arc Guard TVOC-2 builds on the well-appreciated TVOC design and offers unmatched arc monitoring. With over 35 years of experience, Arc Guard System™ has become an industry standard in several key markets, helping to protect personnel and businesses around the world. The TVOC-2 is an optical detection system that together with an external breaker can limit the damage done to personnel and equipment in case of an arc accident happening.</p>
<p data-bbox="108 1122 363 1137">Surge protection devices</p> 	<p data-bbox="560 1122 1513 1272">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. QuickSafe is a new generation of surge protection device (SPD) with improved performance.</p>
Metering, monitoring and signalling	
<p data-bbox="108 1314 300 1330">Electricity meters</p> 	<p data-bbox="560 1314 1513 1480">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.</p>
<p data-bbox="108 1487 443 1503">Circuit monitoring system (CMS)</p> 	<p data-bbox="560 1487 1513 1720">The circuit monitoring system (CMS) is a family of unique ultra-compact and high-performance multichannel measurement systems for branch monitoring. The system consists of a control unit and sensors with different measurement ranges and mounting possibilities. The sensors are measuring alternating (AC), direct (DC) and mixed currents up to 160 A. Up to 92 sensors can be connected to each control unit. The measurement data can be remotely queried by a Modbus system via RS485 Modbus RTU interface.</p>
<p data-bbox="108 1727 300 1742">Network analyzer</p> 	<p data-bbox="560 1727 1513 2047">Energy efficiency, minimized costs and high system availability represent three central aspects of electrical systems. For full installation monitoring, ABB offers a front-panel range of network analyzers: M2M and ANR are able to measure and record network parameters, energy consumption and alarms, routing data to supervision and monitoring systems. They also work as panel manager thanks to the digital inputs, used to gather the information about the status of other devices in the panel in a unique device. The status of the other devices, as well as energy pulse inputs from energy meters, can be remotely monitored via bus to a supervision monitor thanks to the wide range of available communication protocols.</p>

Product / Offering	Benefits and features
Switch and disconnect Limit switches 	<p>Limit switches are the easiest way to convert mechanical movement in to electrical signals. They combine different types of actuators, casings and contacts and are perfectly suited to a large variety of applications, whatever the environment.</p>
Switch-disconnectors 	<p>The OT range of switch disconnectors from 16 to 4000 A 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.</p>
Switch fuses 	<p>OS switch fuses range from 20 to 1250 A and 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.</p>
Transfer and change-over switches 	<p>ABB's transfer switch range from 16 to 3200 A includes switches for transfer of loads from one source to another manually, remotely or automatically. Adequate durability has been ensured by testing against the IEC 60947-6-1 standard in the specification of endurance requirements. The switches have a comprehensive range of built-in safety features. The motorized and automatic change-over switches are also equipped with a handle for manual operation in case of emergency.</p>
Enclosed manual and automatic transfer switches 	<p>Enclosed automatic transfer switches with current ratings from 40 A to 1600 A. The enclosure complies with IP65 EN 60529 and finished in a RAL 7035 colour. The ATS enclosures are designed to allow adequate cabling space to allow installers to terminate oversized cables. Automatic transfer switches are available as 3 or 4 pole versions. All three positions I, 0 and II shall be stable and keep its positions in case of supply failure or mechanical shocks.</p>
Terminal blocks 	<p>SNK series terminal blocks offer high productivity and space saving, an excellent marking visibility which are important values in data centers where a large number of connections are handled.</p> <p>The range is available in PI-Spring (Push-in and spring), screw clamp and pluggable technologies with common accessories. Connecting capacity from 0.22 to 95 mm² (24 to 0000 AWG).</p>
HVAC motor control and protection	
Installation contactors 	<p>ESB installation contactors are mainly used in buildings for switching and controlling lighting, heating, ventilation, motor and pumps. They are designed to match the ABB modular DIN-Rail components and can be easily integrated into dedicated panels. EN contactors have a built-in toggle switch for automatic and manual application.</p>
Manual motor starters 	<p>Manual motor starters are electromechanical protection devices for the main circuit. They are used mainly to switch motors manually ON/OFF 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 off the motor within milliseconds. Starter combinations are set up together with contactors.</p>
Motor controllers 	<p>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.</p>
Soft starters 	<p>ABB's soft starters increase a motor's lifetime by protecting it from electrical stresses. They do so by letting you optimize starting currents that with conventional starting methods put lots of stress on the motor. With many built-in motor protection features, your motor is safe in its hands. ABB's soft starters are also installation-friendly and can cut your assembly and startup time by being easy to use and easy to learn. With everything that you need 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 you increase productivity. Torque control, pump cleaning and many more features let you do more than simply softstarting.</p>

Product / Offering	Benefits and features
<p>3-Pole contactors and overload relays for motor starting and power switching</p> 	<p>ABB 3-pole contactors offer an exhaustive selection of products for simple and extreme applications as well as products with specific purposes. The AF contactor technology revolutionizes how we use contactors and allows use 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. The AS contactor is efficient and allows optimization of equipment design. You can choose terminals between screw, spring and ring tongue from our range of products.</p>
<p>4-Pole Contactors for Power Switching</p> 	<p>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.</p>
<p>Intelligent Building Control</p> <p>ABB i-bus KNX</p> 	<p>ABB i-bus KNX is the intelligent building system that meets the highest requirements for applications in building control data centers. By controlling applications such as lighting, heating, ventilation and air-conditioning building operators can benefit from comfort, security and energy efficiency. The system is based on the simple and proven KNX technology, which is accepted as the world's first open standard for the control of all types of intelligent buildings – industrial, commercial or residential.</p>
<p>Modular and standalone UPS</p> <p>DPA UPScale ST 400 V IEC (10 – 400 kW system power)</p> 	<p>DPA UPScale ST modular double conversion UPS is available for high density data center applications requiring an all-in-one power protection solution that includes frame, UPS, battery and communications. Decentralized paralleling architecture (DPA™) means each module is self-contained and can be added, removed or online-swapped at any time. This fully scalable and easily maintained UPS gives you unparalleled uptime and energy efficiency. UPS is based on 10 or 20 kW modules and can be scaled up to 400 kW.</p>
<p>Conceptpower DPA 250 400 V IEC (30 – 1500 kVA system power)</p> 	<p>Conceptpower DPA modular double conversion UPS provides very flexible power configuration based on 30/40/50 kVA modules that can be added as power requirements grow. Solution is ideal for small to medium size data centers and end-of-rack-row applications. Decentralized paralleling architecture (DPA™) means each module is self-contained and can be added, removed or online-swapped at any time. UPS can be scaled up to 1200 kVA.</p>
<p>Conceptpower DPA 120 208 V UL (20 – 600 kW system power)</p> 	<p>Conceptpower DPA 120 modular double conversion UPS delivers power protection for small and medium power applications in data center applications. Modular decentralized paralleling architecture (DPA™) reduces need to over specify UPS power as power modules can simply be added, as needed, in the future. Modern and smart technology ensures high operating efficiency and easiness of service among other benefits. UPS is based on 20 kW modules and can be scaled up to 600 kW.</p>
<p>Conceptpower DPA 500 400 V IEC and 480 V UL (100 – 3000 kW system power)</p> 	<p>Conceptpower DPA modular double conversion UPS delivers complete power protection solution for medium to large power applications in data centers and other critical applications. Modular decentralized paralleling architecture (DPA™) reduces need to over specify UPS power as power modules can simply be added, as needed, in the future. This also makes the UPS fast and easy to service. This, together with high, up to 96% efficiency reduces significantly total cost of ownership and secures increased system uptime. UPS is based on 100 kW modules and can be scaled up to 3000 kW system power.</p>
<p>PowerWave 33 400 V IEC (60 – 5000 kW system power)</p> 	<p>PowerWave 33, standalone double-conversion UPS, covers range of 60 kW to 500 kW by rated power. Up to ten UPS can be further connected in parallel for more capacity and/or redundancy. High, up to 96% efficiency reduces cost of ownership and carbon footprint.</p>

Product / Offering	Benefits and features
<p data-bbox="108 120 319 136">Control technologies</p> <p data-bbox="108 143 255 159">System 800xA</p> 	<p data-bbox="560 143 1500 383">System 800xA is a scalable extended automation system for process and production control, electrical, safety, and production monitoring. System 800xA is an integration platform with unparalleled connectivity to enterprise and plant systems, applications, and devices that improves operations, engineering, control and maintenance and provides a collaborative environment where real time decision making is a reality. Full featured Distributed Control System perfect for Collaborative Production Automation Integrated Safety, Electrical, Asset Optimization System of choice for medium to large applications.</p>
<p data-bbox="108 416 383 432">Decathlon for Data Centers</p> 	<p data-bbox="560 416 1500 808">Decathlon for Data Centers is ABB's DCIM system for on premise and hybrid cloud environments. At a base level, Decathlon for Data Centers is an integration and automation platform to enable transparency and interoperability for continuous optimization and high availability. Its open, integratable platform and control technologies allow data exchange among systems, equipment, components and applications. You can integrate data from building, power, cooling and IT systems. You can visualize and manage physical assets within a 'single pane' view of the entire data center, including multiple sites. Real-time visibility includes both high level (aggregate) and low level (granular) views of the data center infrastructure, including enterprise, floor plan, zone, system and component views. It is the only DCIM system with coordinated controls to automate cooling and electrical systems. Moreover when combined with third-party optimization solutions of your choice, insight and capabilities are extended for capacity planning and management.</p>
<p data-bbox="108 837 319 853">Microgrids solutions</p> <p data-bbox="108 860 319 875">Microgrid Plus control</p>	<p data-bbox="560 860 1500 1200">ABB's offering includes stabilization as well as automation and intelligent control solutions that manage renewable energy generation in remote or isolated grids, ensuring utility-grade power quality and grid stability. ABB's unique microgrid solutions enable very high levels of wind and solar power penetration in isolated diesel-powered grids, reducing CO2 emissions as well as dependency on fossil fuel supplies that are not only costly, but also uncertain. The ABB's Microgrid Plus control solution consists of Microgrid Plus System™ control system and the PowerStore™ flywheel or battery-based grid stabilizing system. This solution calculates the most economical power configuration, ensuring a proper balance of supply and demand that maximizes renewable energy integration, providing for up to 100% renewable penetration and highest level of stability and reliability.</p>
<p data-bbox="108 1229 319 1245">Installation products</p> <p data-bbox="108 1252 430 1267">Cable ties, tools and accessories</p> 	<p data-bbox="560 1252 1500 1402">ABB offers one of the industry's broadest ranges of innovative solutions for fastening, bundling and securing wire and cable, including the trusted Ty-Rap®, Ty-Fast® and Spec-Kon® cable tie brands in multiple sizes, colors and specialty materials for demanding applications. Our range also covers many mounting bases and easy-to-use tools.</p> <ul data-bbox="560 1408 1500 1525" style="list-style-type: none"> - Hook-and-loop fasteners for bundling low-voltage and fiber optic cabling - Plenum-rated for use in air-handling spaces above ceilings and under floors - Weather-resistant for rooftops and other outdoor applications - UL® Listed for metal-clad cable support in walls
<p data-bbox="108 1576 223 1592">Wiring duct</p> 	<p data-bbox="560 1576 1500 1693">Premium quality duct for point-to-point wiring is ideal for electrical enclosures, machine building and data/communications panels and cabinets. Offering includes imperial, metric and DIN duct in standard materials and specialty materials that are halogen-free.</p>
<p data-bbox="108 1778 367 1794">Wire termination and tools</p> 	<p data-bbox="560 1778 1500 1895">A full line that includes insulated and non-insulated terminals, splices, wire joints, disconnects, ferrules, heat-shrinkable terminals, splices and disconnects in imperial and metric sizes. A complete set of tooling is included. Products are IEC, UL® listed and CSA certified.</p>

Product / Offering	Benefits and features
<p>Shield-Kon® coaxial grounding connectors</p> 	<ul style="list-style-type: none"> – One- and two-piece coaxial connectors for grounding – Save time and reduce assembly costs – Safe monitoring and simple operation – Low profile and compact size
<p>Heatshrink solutions</p> 	<p>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).</p>
<p>Safety labels, tags, signs and barricade tapes</p> 	<p>Safety labels, tags, signs and barricade tapes</p> <ul style="list-style-type: none"> – Help to ensure personnel and workplace safety – Conform to NECR 2012 Section 110.3(A)(1) – Highly visible and long-lasting materials – Barricades and burial marking tapes in a variety of materials and colors – Custom labels, tags and signs
<p>Compression cable lugs and tools</p> 	<p>AWG, IEC and DIN 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. Specifically for space saving applications we offer:</p> <p>Narrow-tongue Lugs</p> <ul style="list-style-type: none"> – Consistent narrow width from barrel to tongue to fit into tight spaces – Featuring the Color-Keyed® Installation Tooling System that ensures proper connections – Space-saving 90°, tee and cross connections – Use with standard compression lugs and splices and install with standard compression tools
<p>DuraGard® pin-and-sleeve connectors</p> 	<ul style="list-style-type: none"> – Complete line of 20–60 A (600VAC/250VDC max.) connectors, plugs and receptacles – UL94V-0 flammability-rated, corrosion-resistant non-metallic housings – Waterproof whether mated or unmated
<p>Fittings</p> 	<p>CHASE® Fittings</p> <ul style="list-style-type: none"> – Compact, low-profile fittings – ideal for limited space – Line encompasses nipples and hubs for rigid conduit, as well as liquid-tight conduit fittings and cord connectors <p>Multi-Hole cord grips</p> <ul style="list-style-type: none"> – Space- and labor-saving metallic or non-metallic cord fittings for panels – Up to 4-to-1 SKU reduction – purchase, stock and install one fitting versus four
<p>Carlton ENT (Electrical Non-metallic Tubing) system</p> 	<ul style="list-style-type: none"> – To be used within the air-handling spaces beneath raised floors for informational technology equipment as per NEC® Sections 300.22(D) and 645.5(E) – Material-handling savings with lightweight, flexible coils – Installs in half the time of comparable EMT conduit
<p>Cable tray & metal framing systems</p> 	<p>T&B® cable tray is a cost effective, reliable and adaptable alternative to conduit systems. Additionally ABB offers a comprehensive lines of metal framing including the industry's only 100% plated products, our 1 1/2" modular system, and hundreds of accessories to complete any job.</p>

Product / Offering	Benefits and features
Grounding systems	<ul style="list-style-type: none"> - Superior grounding and bonding of electrical systems and equipment - EZGround™ connectors provide a consistent, irreversible bond - Connectors require no special tools to install
Flexible braids	<ul style="list-style-type: none"> - Variety of flexible straps and accessories for grounding - Extra-flexible links for heavy-duty applications to 3,600 A - Standard links for medium-duty applications to 2,350 A
Signal reference grid connectors and clamps	<ul style="list-style-type: none"> - Secures grid grounding to raised floor posts - No kinks or bends with lay-in feature - Range-taking design - Quick and easy installation
Grounding bushings & bonding locknuts	<p>Blackjack® Grounding Bushings</p> <ul style="list-style-type: none"> - Dual rated for grounding and bonding of threaded and unthreaded conduit, aluminum and copper wire - Speeds installation and improves aesthetics - UL® listed and CSA Certified <p>Bonding Locknuts</p> <ul style="list-style-type: none"> - Ensure positive bonding of conduit to enclosure - Available in steel or aluminum
Distribution switchgear and molded vacuum interrupters	<p>Solid EPDM insulating media makes them maintenance-free and environmentally friendly – no oil, no gas</p> <ul style="list-style-type: none"> - Compact modular switchgear designs allow for smaller footprint and field assembly inside tight vaults - Molded vacuum interrupters provide compact, lightweight, submersible protection with predictable tripping for ease of upstream/downstream coordination
Industrial plug and sockets – Easy & Safe	<p>Basic range of industrial plugs and sockets for 16-32 A with high requirements on quality, safety and functionality. Plugs, connectors, sockets and inlets for surface and panel mounting. Compact design makes 'Easy & Safe' suitable for applications with limited space.</p>
Industrial plugs and sockets – Modular Combi	<p>Modular Combi is an effective fully customized system with a combination of IP&S outlets and inlets, Schuko outlets and ABB DIN-rail components in a robust metal or plastic box. Managing power this way is rational and safe. Modular Combi is very easy to install, delivered fully assembled and wired, only one feeding cable is needed. It is easy to modify in the future for additional needs.</p>

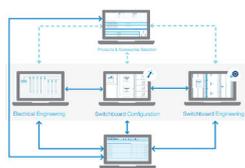
Product / Offering**Services and Support**

Service

The services offered by ABB for the low- and medium-voltage products and systems span the entire value chain, from the moment a customer makes the first inquiry to disposal and recycling of the product. Throughout the value chain, ABB provides training, technical support and customized contracts. All of this is supported by one of the most extensive global sales and service networks.

Consultancy

Finding the best technology solution for your electrical system designs is easy with ABB's comprehensive selection tools and extensive technical documentation. We offer highly functional and easy to deploy products to support a wide range of projects. And we want to support you at each stage of your project, with design software, training materials, configuration and product selection tools. Whether you're looking to deliver energy efficiency, space savings, easily maintained systems or overall project cost reduction for your customers, with the breadth of our offering you can deliver customized solutions to meet your project goals and streamline engineering processes.

Design software

Choosing the right products for complex installations can be extremely time consuming. ABB provides a wide range of software and mobile applications to help you select precisely what you need, in a simple yet effective way. Choosing, dimensioning and drawing your application has never been easier.

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