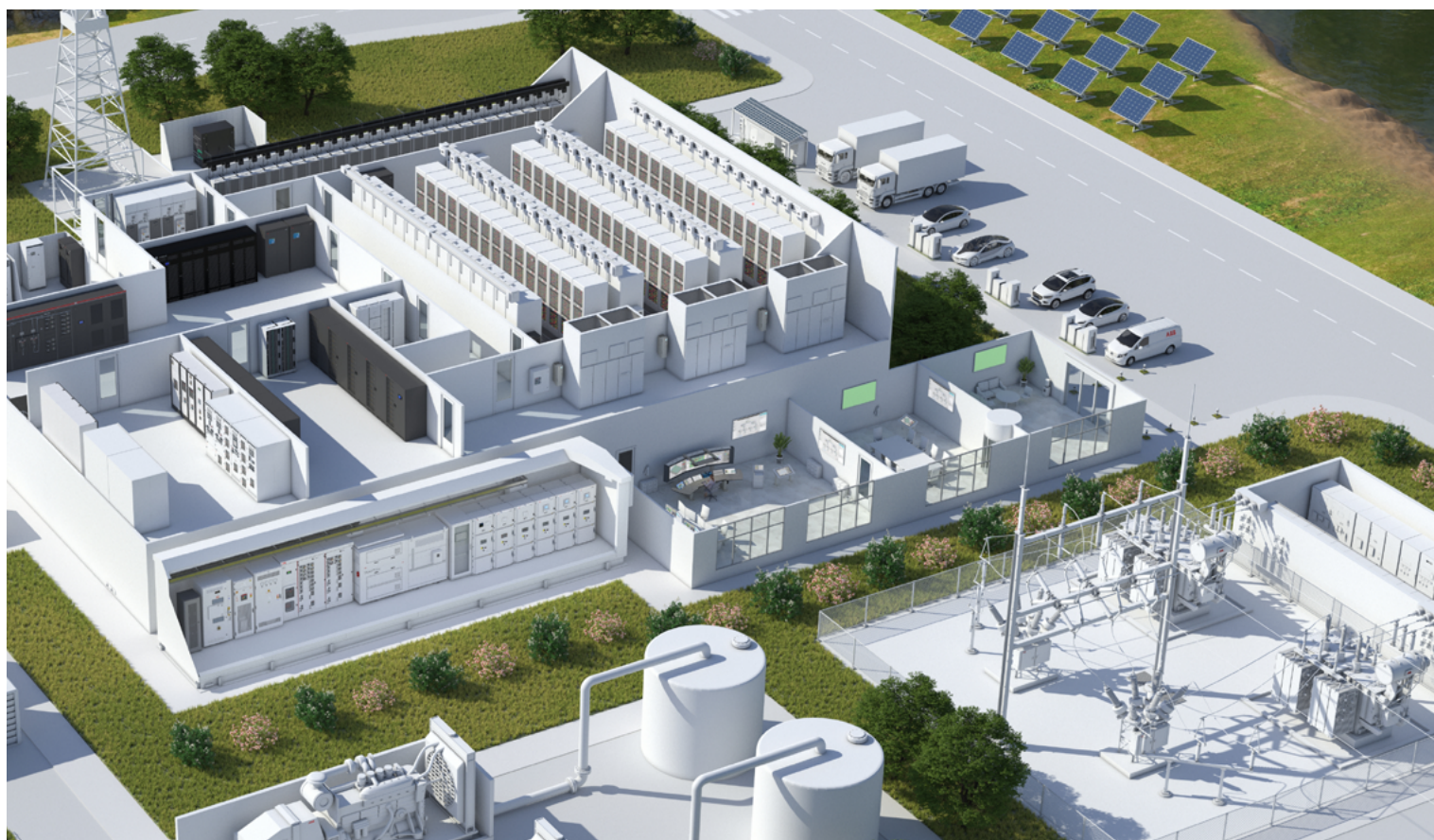

ABB Data Center Solutions

Trusted. Reliable. Proven.



With our broad, comprehensive portfolio of proven data center solutions, we will help keep your operations running 24/7.

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Don't get left in the dark

Let ABB's complete data center portfolio be your guiding light

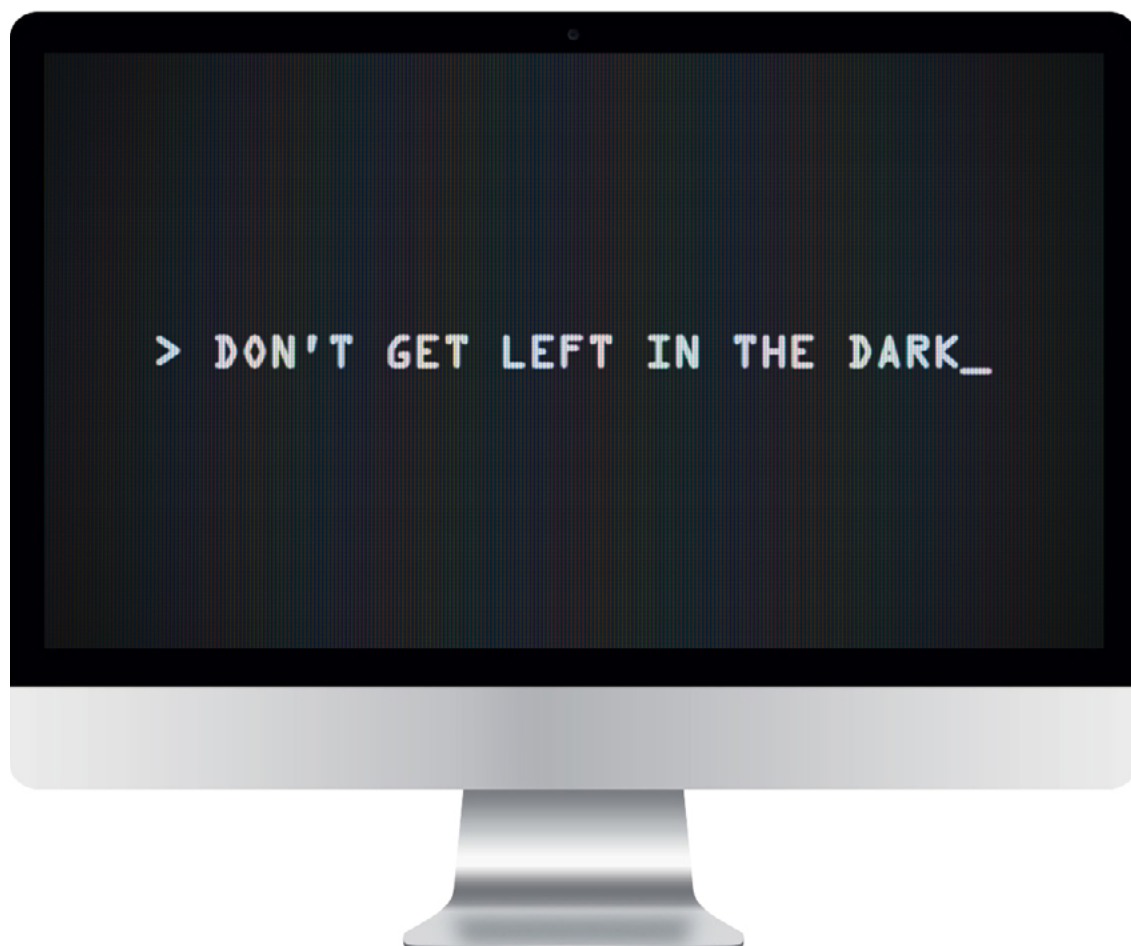
Over the last decade, the world has undergone a transformative digital revolution. At the core of this transformation are data centers, processing and storing massive amounts of data per minute to keep up with the ever-increasing demand for information.

With millions of customers relying on data centers for uninterrupted access to information, being left in the dark is not an option – uptime is critical to data center operations.

As a technology leader in the field of data centers, ABB provides innovative and sustainable solutions that provides reliable energy and crucial insights to enable mission critical intelligent operations.

ABB's complete line of low to medium voltage electrical components facilitate intelligent grid connection to improve availability and quality of power today. While our full portfolio of smart devices provide the intelligent insights to expertly address new challenges that data centers face today and in the future.

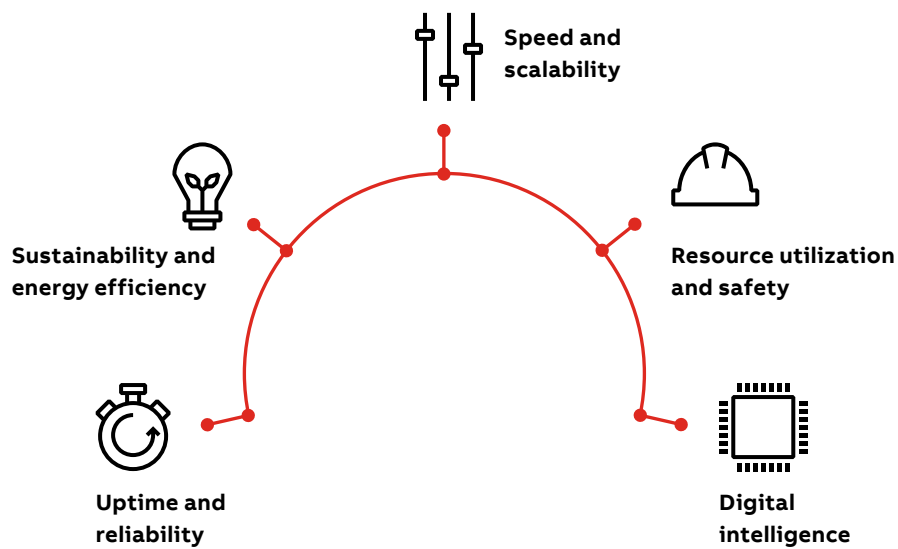
At a time when data centers cannot leave their uptime to chance, our 100+ years of electrification experience across the globe makes ABB your trusted, reliable and proven technology partner to achieve a more productive and sustainable future.



Partner with ABB for the experience and expertise to solve the industry's most pressing challenges

ABB provides intelligent and sustainable solutions to help solve the industry's most pressing challenges that you may face:

We look forward to empowering your data center and supporting you in meeting the industry demands of today and tomorrow.



Data center portfolio

Critical Power

- Uninterruptible Power Supplies (UPS)
- Static transfer switches (STS)
- Automatic Transfer Switches (ATS)

White space electrical solutions

- Power Distribution Units (PDUs)
- Remote Power Panels (RPPs)

Installation Products

- Compression and mechanical connectors
- Grounding and bonding systems
- Cable and wire management
- Flexible conduit and fittings / rigid fittings
- Metal framing
- Cable Tray

Cooling system components

- Variable frequency drives
- Variable speed drives
- High efficiency motors
- PLC automation

Low Voltage Power Distribution

- LV Switchgear
- LV Switchboards
- Distribution switchboards
- Electronic relays & controls
- LV Power and lighting panels
- Smart metering & monitoring
- Busway
- Arc flash protection
- Low voltage breakers
- Low voltage switches

Medium Voltage Primary & Secondary Distribution

- Air insulated MV switchgear
- Gas insulated MV switchgear
- Protection relays
- Control systems
- Paralleling switchgear (PSG)

Medium Voltage Substations

- AIS & GIS switchgear
- Control systems
- Prefabricated modular data center solutions (eHouses & skids)
- Outdoor breakers
- Compact Secondary Substation

Alternate power sources

- Generators
- Battery Energy Storage Systems (BESS)
- Fuel cells
- Microgrids
- Solar power solutions
- Wind power solutions

ABB Ability Digital Data Center Operations

- Data Center Automation
- DCA Edge Solution
- Electrical power management system
- Energy and Asset management
- Smart building solutions
- Condition monitoring

Service & support

- Installation & commissioning
- Consulting services (engineering studies)
- Retrofits and upgrades
- Digital upgrades

Other capabilities

- EV charging

Reliable solutions for continuous operations

Ensuring uptime and reducing planned outage time



**Cuts
resolution
time 24 to
72 hours**

Remote Assistance for Electrical Systems (RAISE) provides immediate access to ABB experts through the power of augmented reality

By 2025, there will likely be more than 27 billion IoT connections across the globe. This increase in connected devices makes uptime in data centers even more critical to customers. Given the ever-growing demand for data and information services and the increasing cost of service interruptions, data centers are pressed to maintain continuous operations and to have appropriate contingencies in place to reduce downtime and avoid unplanned outages.

ABB's robust, proven electrical, automation and control portfolio helps our data center clients sustain continuous operations and reduce service interruptions. And our digital solutions enable continuous monitoring of the health of critical electrical assets to anticipate equipment failures that can cause outages.

ABB's advanced remote service solutions leverage immersive augmented reality to provide fast and professional virtual support. This enables electrical issues to be immediately identified and addressed to decrease the length of service interruptions.

Reliability by design

Cutting-edge technology to maximize uptime

- First level support via our Collaborative Operations for electrical systems or CLOSER for fast support and easy-to-access operation and troubleshooting guides via immersive augmented reality environment.
- Intelligent breaker selectivity schemes with Emax2 and Tmax XT low voltage air circuit breakers to rapidly identify and exclude the faulted area without indiscriminate trips that reduce the availability of energy in areas not affected by the fault.
- True decentralized parallel architecture uninterruptible power supplies such as our MegaFlex DPA to provide independently

functional UPS modules for redundancy and reliability

- Eco-efficient Gas Insulated Switchgear (GIS) with "run-flat" technology allows continued safe operation in case of leaks with minimized impact on downtime up to the point of repair
- ACH580 active drives for cooling control to withstand voltage dips and mitigate electrical harmonics and ensure cooling continuity
- ABB Ability™ Asset Manager is a state-of-the-art cloud solution that provides full visibility of asset condition to maximize uptime and reduce maintenance costs by up to 40 percent.

Energy efficient and sustainable solutions

Enabling data centers to meet sustainability goals



HiPerGuard medium voltage UPS with market leading efficiency – 98 percent and energy reserve available for grid support services

**Market
leading 98%
efficiency**

While data centers have been leading the way on sustainability, being responsible for two percent of the global power consumption creates pressure for even greener data centers. And with the ever-increasing demand for data and the internet of things (IoT), the race towards carbon neutrality and sustainability remains one of the biggest challenge for data centers.

ABB's complete electrical and automation portfolio provides the energy efficiency and energy insights to help data center clients monitor and reduce power usage. Additionally, advancements in high efficiency and environmentally-friendly technology support lower carbon emissions.

ABB has a wide selection of high-efficiency solutions which can reduce power consumption, including ECOPassport and Energy Star label Uninterruptable Power Supplies (UPS).

Sustainability by design

Energy efficient portfolio including:

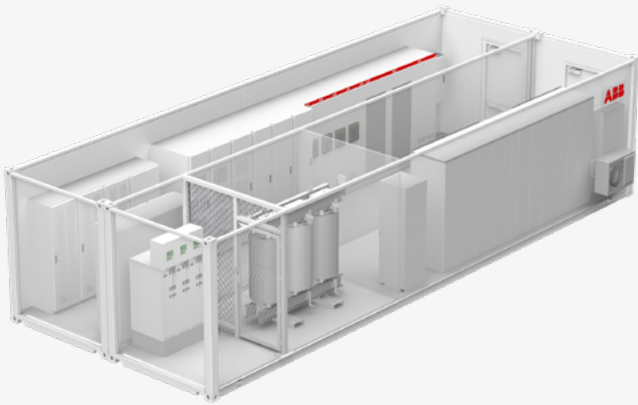
- Uninterrupted Power Supplies such as our MegaFlex UPS with a class leading efficiency of 97.4 percent in double conversion and up to 45 percent smaller footprint/in size than leading competitors.
- High-efficiency motors and variable speed drives which can reduce electricity consumption by up to 60 percent.
- Ultra-low harmonic drives to boost uptime for mission critical facilities and optimize cooling systems. Reduce equipment over dimensioning, thanks to low harmonics and save energy.
- Low Voltage switchgear options with enhanced thermal performance to limit energy losses such as our MNS Fixed and NeoGear switchgear.

Investment in sustainable technology such as:

- Eco-efficient Gas Insulated Switchgear (GIS) featuring AirPlus, a pioneering gas mixture that reduces global warming potential by almost 100 percent.
- Battery Energy Storage Solutions to optimize renewable energy-enabled microgrid systems while reducing genset usage saving up to 85 percent emissions.
- Advancements in fuel cell technology such as our partnership with AFC Energy for a carbon-friendly alternate power solution.

Modular, scalable solutions

Enabling speed to deployment



ABB's modular integrated solutions provide simplified execution, cost predictability and risk mitigation via scalable designs that can be replicated across the globe

**Improve
speed of
deployment by
up to 50%**

The world has seen a massive digital transformation over the last decade. Studies foresee that by 2025, over 460 exabytes of data will be generated daily. Together with the ever-increasing consumption of data is the steadily rising demand for data centers that can scale and grow to address current and future user requirements.

ABB offers modular, scalable, and prefabricated solutions that improve speed to deployment between 30 to 50 percent. These integrated solutions can reduce installation and commissioning costs, decrease the possibility of schedule delays and cost overruns, lower onsite labor requirements and facilitate a safer work environment as these are integrated and tested before leaving the factory.

In addition to our prefabricated solutions that help data center operators observe a pay as you grow model, ABB has a wide portfolio of modular and scalable solutions that enable our clients to pace capacities and expenses as their facilities develop.

Speed and scalability by design

Modular and scalable solutions for easy expansion:

- Modular Uninterrupted Power Supplies (UPS) with decentralized parallel architecture. enables "pay as you grow" phased construction for easy expansion
- Customizable, cost-effective turnkey protection and control solutions such as our SSC600 control with fully modular software for future extensions.

Reduced wiring solutions for fast installation:

- Intelligent equipment such as our digital switchgear solutions reduce control wiring and connections up to 90 percent for faster delivery, engineering, commissioning and installation.
- All-in-one automatic transfer switch such as our TruOne Automatic Transfer Switch designed for quick installation with only one connection.

- Variable speed drives with control logic and connectivity built-in eliminating the need for external gateways and I/O extensions saving time and money.

Standardized and pre-engineered solutions to improve speed:

- Quick ship products such as our SafeRing ring main units designed for secondary distribution networks are available in 18 different configurations offering the highest safety and reliability.
- Prefabricated and pre-engineered eHouse and skid solutions reduce design, manufacturing and installation and commissioning time.

Protecting valuable resources

Enabling data centers to do more with
to improve safety and preserve resources



NeoGear is a revolutionary new low voltage switchgear that improves safety, reduces footprint up to 25 percent and reduces losses dispatching 20 percent less heat.

**Reduces
footprint up
to 25%**

Resource utilization and management can be addressed via digital capabilities, efficiencies, sustainability and circular resource utilization. Offsite manufacturing of prefabricated solutions reduce the number of trades needed on site for installation and commissioning. And advanced digital technology, such as digital switchgear, can save operators up to 25 percent on space compared to conventional systems. Space saving solutions allow more room to be used for core business in data centers. This reduces CAPEX and frees up space for the servers.

When it comes to safety, there are three main elements that must be protected: employees, operations and the environment. And as data centers become larger and more complex, there is an even greater need to take definitive measures to pro-actively and effectively balance employee health and safety with the uninterrupted availability of mission-critical equipment and systems.

ABB provides a robust electrical and digital portfolio that allows data centers to guarantee optimal performance while effectively managing energy use and other related resources.

Protecting valuable resources

Save space with our reduced footprint portfolio:

- Our combined, scalable UPS and low voltage switchgear, the MNS-Up reduces overall footprint by up to 30 percent compared to conventional solutions.
- Our Compact Secondary Substations (CSS) are type tested and arc tested assembly to supply LV energy from MV systems.

Improved personnel safety with touch-proof and arc-quenching portfolio:

- Compact, touchproof, Remote Power Panels (RPP) have network analyzer capabilities and branch circuit monitoring.
- Our ReliaGear™ SB switchboard design with improved finger-safe bus stack that meets IP20 standards.
- Ultra-Fast Earthing Switches (UFES) provide ultra-fast arc mitigation to limit arc incident energy increasing safety for personnel and equipment.

- Optical arc flash mitigation devices such as the Arc Guard System TVOC-2 detects light from an arc flash and sends a signal to the breaker within 1 ms.
- Arc Resistant Switchgear, such as SafeGear, carefully routes hot gases from an arc fault through a system of vents and flaps to keep personnel safe and damage contained in the compartment of fault origin.
- Touch-proof line protection solutions such as our SmissLine portfolio prevents danger to personnel from switching arc or accidental arcing.

Digital solutions for intelligent data centers

Providing actionable insights to optimize operations



Save up
to 20% on
energy bills

ABB Ability™ Energy and Asset Manager – Integrates energy and asset management into a single intuitive dashboard providing full visibility of asset and electrical-system behavior to minimize cost and risk and maximize performance and safety.

The amount of data consumed and transmitted worldwide is expected to grow from around 59 zettabytes (ZB) in 2020 to around 149 ZB in 2024. At the core of this complex digital transformation are data centers that support and empower advancements in data processing and storage.

In order to keep up with this growth, data centers have led the implementation of digital technologies to strengthen their electrical infrastructure and guarantee maximum uptime. These digital solutions, which can range from energy monitoring and management to asset intelligence, provide the intelligence and visibility required to anticipate and avoid costly downtime. Aside from providing valuable insights that can help improve operations, digital solutions can also significantly simplify hardware and wiring, making them easy to install and maintain, lowering operational costs.

ABB offers a diverse portfolio of digital solutions that provide deep component-level visibility of each asset all the way to the performance and efficiency of the overall electrical network, encouraging a more pro-active maintenance strategy that can save time and resources. These smart devices also provide actionable energy efficiency insights and troubleshooting data to allow operators to optimize processes and resources.

Intelligence by design

Add innovation and intelligence with ABB's smart solutions:

- Control, monitoring, and optimization for mission critical infrastructure with our **ABB Ability™ Data Center Automation** with mechanical (BMS), electrical (EPMS) and DCIM capabilities.
- Ideal for edge and small data centers consider ABB's electrical power management system, **ABB Ability™ Data Center Automation Edge Solution**, which is an easy to deploy standalone monitoring system.
- For scalable building automation solutions consider **ABB Cylon Building Management System** with open protocol controls and cloud-based analytic tools.

- To update and upgrade existing data centers to add intelligence such as monitoring and protection and control capabilities consider ABB's low-voltage digital unit, the **Ekip UP**.
- Convert traditional motors into smart, wirelessly connected devices to monitor vibration, temperature and other parameters with our **ABB Ability™ Smart Sensor for motors**.
- Enable branch circuit monitoring of energy consumption to provide visibility of the load on each circuit breaker with ABB's **CMS-700 Circuit Monitoring System**. Ideal for colocation data centers.

ABB Service

Global Support Structure with dedicated teams in +52 Countries



ENTIRE LIFE CYCLE
MANAGEMENT SOLUTIONS
FOR YOUR DATA CENTER



SERVICE CENTERS IN MORE
THAN **52** COUNTRIES, WITH
MORE THAN **2.600** CERTIFIED
SERVICE EXPERTS
FOR YOUR DATA CENTER

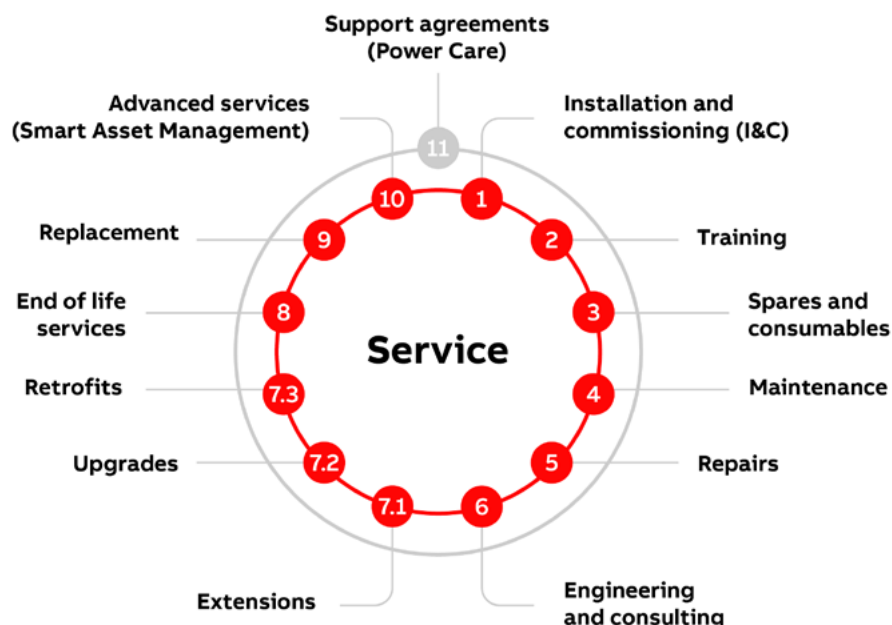


FAST SUPPORT AND
TROUBLESHOOTING
GUIDES VIA IMMERSIVE
AUGMENTED REALITY

With our local presence, global footprint, fast delivery and responsiveness, our data center service offering provides the solutions needed to support your entire data center lifecycle enabling availability, reliability and predictability. We support a wide range of electrical power distribution devices from ABB, its legacy brands (ASEA, BBC Brown Boveri, Calor Emag, SACE, Stromberg, Gardy, EKF, ITE, ZWARR, LK NES, Reyrolle, Westinghouse) and other manufacturers. The services offered by ABB span the entire value chain, providing training, technical support and customized contracts.

Remote support offers immediate access to ABB experts through the power of augmented reality. Fast support and troubleshooting guides improve uptime and reduce outage time via immersive augmented reality.

We drive services for safe, smart and sustainable electrification.



Collaborating to address the industry's most pressing challenges

Partner with ABB to improve operational productivity, efficiency and sustainability

With our extensive history as a global electrification and technology leader, together with our deep understanding of the industry and its various challenges, ABB is the ideal partner for data centers that strive to competently meet the demands of today and tomorrow.

Partner with ABB:

- Robust solutions built to the highest standards to provide consistent and uninterrupted services to meet your customer demands
- Library of pre-engineered solutions optimized for footprint, scalability, and ease of deployment to improve speed to meet the mounting demand for data center services
- Cutting-edge technology to meet environmental regulations and achieve sustainability goals
- Highly integrated, intelligent solutions and domain expertise to help you overcome the ever-increasing labor shortage challenges of today

Experience and expertise in data center electrification

Domain expertise: With over 100 years of experience in electrification and utility connection knowledge, ABB ensures data center design is fully compliant with local and international codes and standards.

Complete electrical and digital portfolio: ABB offers low to medium voltage products and solutions for GB, IEC, NEMA and ANSI standards all over the world to meet local standards.

Ensure supply: ABB's global footprint provides data center operators with a strong supply of suppliers and factory locations all over the world that can manufacture and deploy products and solutions with speed and efficiency.





Don't get left in the dark:
Let ABB's complete data
center portfolio be your
guiding light.



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Additional information

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