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A power protection magazine
of the ABB Group

power



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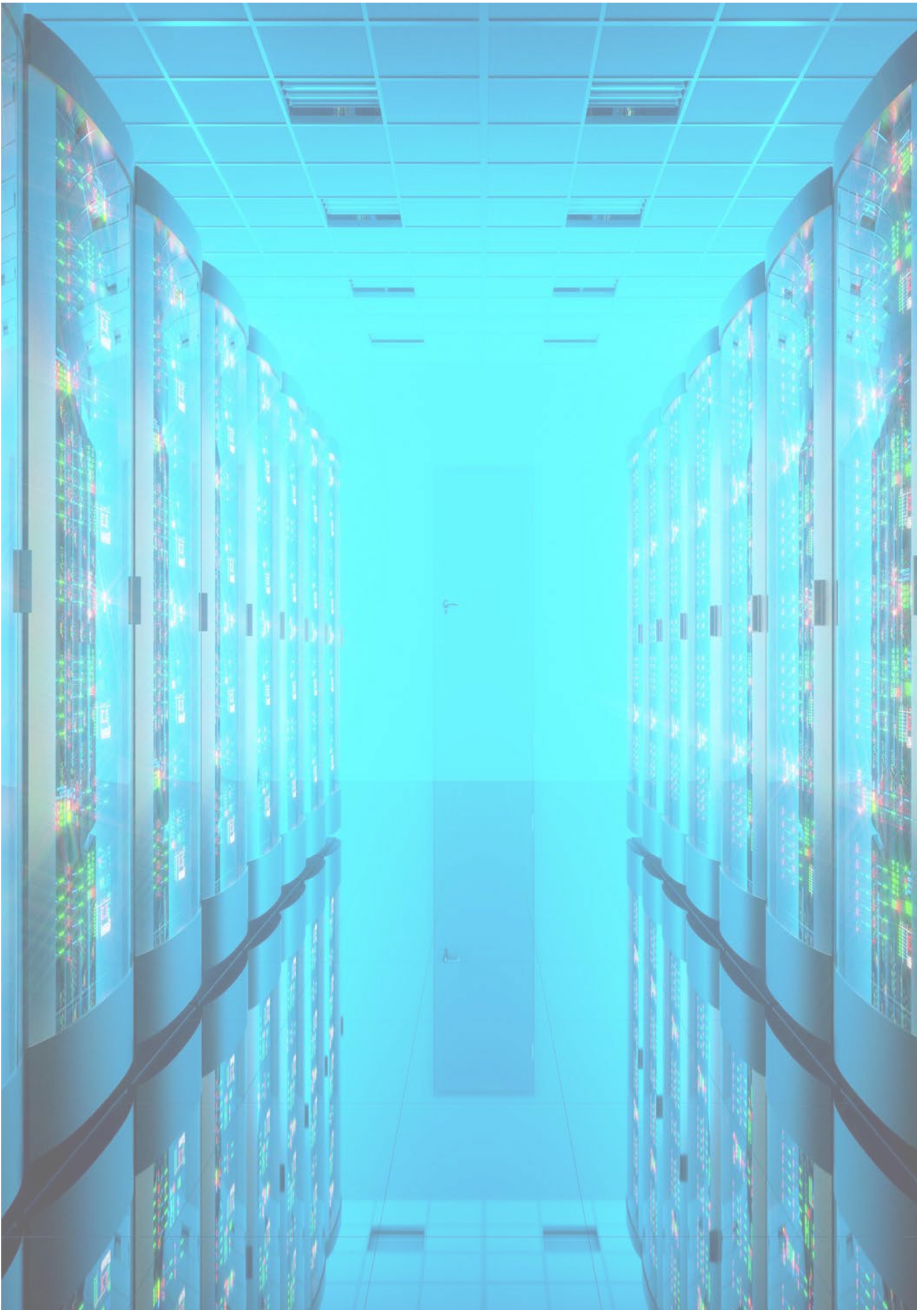
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Conceptpower DPA 500

Power and productivity
for a better world™





3|16 power



Antonio Coccia

Global Head of Technology
Power Protection
Discrete Automation and Motion division

We are now halfway through the year and I am pleased to say that our business is performing according to expectations. Our products are, as usual, finding use around the world, but among others there is one application attracting much attention: the Gotthard Base Tunnel. At 57 km's, this newly-opened tunnel is the longest railway tunnel in the world. ABB supplied the medium-voltage supply for the tunnel's infrastructure and the transformers for the 50 Hz grid, as well as most of the rest of the electrical infrastructure. To secure power flowing to all this critical equipment, we supplied two separate Conceptpower DPA 250 UPS installations, each with an output power of 90 kVA.

Within our data center segment, we had an interesting experience in the Czech Republic where TTC TELEPORT (a leading provider of data services in the Czech Republic) had to build a new data center to cope with increasing customer demand. The proposed concept and the backup power supply technology was designed to ensure maximum reliability and availability levels. Under these requirements, ABB's Conceptpower technology was selected, which included the installation of several Conceptpower DPA 500s and DPA 250s.

Staying with data centers, Volico in the United States wanted to evolve their data center into a "pay-as-we-grow" concept. However, when it came time to grow, they discovered their UPS did not have the needed flexibility and scalability. Faced with a major roadblock to expansion, Volico reached out to ABB for help. Fortunately, the UL version of our new Conceptpower DPA 500 UPS provided the scalability and reliability needed to support expansion. The Volico project is the subject of an excellent video produced by our Richmond, US colleagues that I would recommend you watch.

At one of the biggest technology events of the year, the Hannover Trade Fair, we were delighted to launch our Industrial PowerLine DPA at this year's event. The Powerline DPA covers power ranges from 20 kVA to 120 kVA and is designed to provide a modular UPS solution for light industrial settings. This was the first chance the public had to become acquainted with its capabilities and I am very pleased to say it was very well received by all visitors to the ABB stand!

Focussing on our Power Conditioning offering, designed and manufactured by our team in Napier, New Zealand, we are pleased to mention the very first installation and commissioning of the PCS100 AVC-40 in Abuja, Nigeria.

It is also important to note that our Power Conditioning team in Napier has been rewarded with the recent announcement that the PCS100 MV UPS has been shortlisted as a finalist in the Deloitte Energy Excellence Awards. The awards, now in their seventh year, are being held in Auckland, at SKYCITY, on August 10, to recognise achievement and excellence across the New Zealand energy sector.

Enjoy this issue of **power**.



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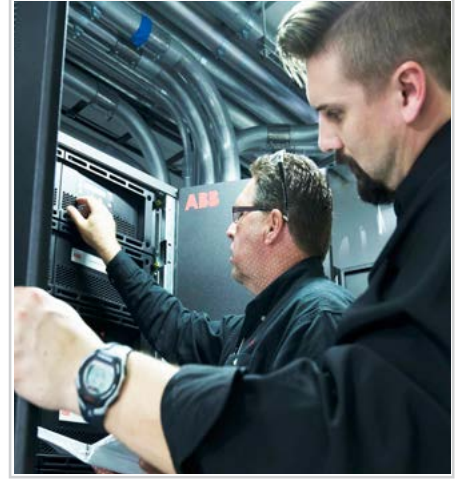
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Solving a data center's
need for rightsizing
and simple scalability

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PowerLine DPA launches at Hannover Trade Fair



PowerLine DPA UPS on display at the Hannover Trade Fair

In April, ABB presented the new PowerLine DPA uninterruptible power supply to the public for the first time at the Hannover Trade Fair. The Powerline DPA covers power ranges from 20 kVA to 120 kVA and is designed for use in light industrial settings.

The Powerline DPA was very well received by visitors to the ABB stand. Of particular interest was its decentralized parallel architecture (DPA), which delivers not only the best availability but also the best serviceability, scalability and flexibility. Modules can be added to the system as power requirements grow, thus avoiding the need to overspecify the original configuration. They can also be replaced without powering off, so routine maintenance is simple.

To find out more about ABB's power protection solutions visit www.abb.com/ups



PCS100 MV UPS finalist in Deloitte Energy Excellence Awards

[ABB has been named as a finalist in the New Zealand Deloitte Energy Excellence Awards for their PCS100 medium voltage UPS in the Energy Technology of the Year category.](#)

The awards, now in their seventh year, are being held in Auckland, at SKYCITY, on August 10, to recognize achievement and excellence across the New Zealand energy sector. Chairman of the judging panel, Toby Stevenson, says that the calibre of entries was extremely high and the finalist selection process had been a tough one.

“The record number of entries received this year is a true testament to the excellent stories to be told about companies and individuals working in energy-related activity in New Zealand”, he says. “We appreciate the effort that goes into preparing an entry and wish to thank all those that entered this year.”

ABB's PCS100 MV UPS was designed to provide clean, reliable and efficient power, and lower costs for customers in industry and large data centers who have sensitive or critical loads.

The trend towards mega data centers to support cloud and co-location means data centers will get larger, better suiting medium voltage solutions. Providing power protection at medium voltage has many benefits, including complete facility protection ensuring all sensitive loads are protected and a world class efficiency level of 99.5 percent. What this means to businesses is the opportunity to purchase a UPS that is not only far more efficient, but cheaper and simpler to operate, with reduced maintenance and installation costs, important physical siting flexibility and a centralized power system.



PCS100 medium voltage UPS



A continual, regulated supply of utility voltage?

Absolutely.



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. Visit www.abb.com/ups/pcs100

Power and productivity
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Partners in power

The 2016 power protection global partner summit.

In June, approximately 100 guests from over 40 countries around the world assembled in Quartino, Switzerland for the 2016 Power Protection Global Partner Summit. The event turned out to be a resounding success and was the highest attended partner summit to date.

The summit was held at the Esplanade Hotel Resort and Spa near Locarno, with partners arriving the evening before to give them the chance to mingle and catch up on the latest news from friends and colleagues. The first day, Wednesday 15th June, saw a packed program. A full agenda of presentations and updates covered the entire spectrum of ABB's power protection business. The opening presentation was conducted by Amina Hamidi, ABB's Power Protection general manager, and the overview and update that she provided was very well received. This was then followed with briefings on strategy, product roadmaps, the progress of new technology, business development activities and presentations from special guests.

At the end of the first day, the delegates were invited to a gala dinner at the La Belle Epoque restaurant in the Esplanade Hotel, where they were able to discuss the day's events and enjoy the presentations of this year's partner awards, presented to the winners for their extraordinary achievements. This year's award winners were:

Partner of the Year Award: Notstromtechnik-Clasen GmbH

Best Service Partner Award: Uninterruptible Power Supplies Ltd

Best Start-up Partner: JS Electromec Ltd

Most challenging project: Multitech LLC

Best sales of modular UPS: Uninterruptible Power Supplies Ltd

Outstanding performance in challenging market conditions: Shark Ltd

The second day of the summit began with three breakout sessions, allowing delegates to delve deeper into topics that are important to their business. In the first session, the delegates were provided with a tour of ABB's UPS factory, to offer them a behind-the-scenes look at how the UPS products are manufactured. They were able to view the new testing sites, learn how manufacturing efficiency is being improved and experience the connectivity solutions first-hand.

The second breakout session analyzed the various aspects of total cost of ownership. Contributions regarding critical success factors on both sides were discussed and conclusions were drawn. The third session concentrated on customer focus and quality, where delegates were invited to provide input as to how improvements can be made in terms of products, processes, services and the way in which we operate with one another.

The summit officially came to an end around noon, but after lunch, delegates were invited on a tour of the region. This trip was well attended and provided further opportunity to network whilst enjoying some of the stunning alpine scenery in the area. On the following day, a number of delegates spent some time receiving factory training to expand their knowledge of the power protection product range, in small discussion groups.

Everyone found the content throughout the entire event to be both interesting and relevant, in particular with relevance to where the new products fit within the market. The breakout sessions were well attended and the factory visit was seen to be very useful.

We look forward to a similarly successful global partner summit in 2018!



Attendees at the 2016 power protection partner summit





PCS10 Gotthard base tunnel; © AlpTransit Gotthard Ltd.

Conceptpower DPA UPS installed in Gotthard Base Tunnel

ABB provides power protection solutions to longest railway tunnel in the world.



ABB provided essential electrical components for the 50 Hz power supply of the Gotthard Base Tunnel infrastructure and its energy efficient ventilation system.

The Gotthard Base Tunnel is roughly 57 kilometers in length, making it the longest railway tunnel in the world. It was built by AlpTransit Gotthard AG, who commissioned Transtec Gotthard as the general contractor for the railway applications. ABB was hired as a sub-contractor to provide medium voltage supply for the tunnel's infrastructure in addition to delivering transformers that provide the power required to maintain the 50 Hz grid.

The builder contracted a consortium consisting of ABB and German-based company TLT Turbo GmbH, to construct one of the most vital elements of the tunnel project: the largest tunnel ventilation system ever built.

Challenges faced by the client

The challenges faced at the Gotthard were its harsh climatic conditions and rough terrain. The 50 Hz energy supply in the tunnel's tube is exposed to aggressive salts, brake dust, soot particles, as well as track and wire particles while at the same requiring only minimal maintenance. Enormous pressure fluctuations between ± 10 kPa, caused by trains traversing the cross passages at speeds of up to 250 kph, complicate matters even more. In addition, the energy supply needs to continue safely and without interruptions to ensure continued railroad traffic. The ventilation also needs to ensure maximum safety for individuals in case of fire. This is achieved by providing sufficient fresh air at the emergency stops and by efficiently extracting smoke.

ABB's solution

ABB installed a gas-insulated medium voltage ZX0 switchgear to power the 50 Hz tunnel infrastructure. These 16 kV switchgear units are compact in design and by connecting these in groups of up to six units, a fully functional control unit can be built, allowing for quick and easy total replacements during a disruption or emergency. Aside from providing the standard-welded gas insulated high voltage element, an additional control cabinet with protection level IP65 was included, which prevents ingress of dust or water jets. More than five hundred REF542plus safety and control units, with multi-stage distance protection, ensure optimal security across the entire tunnel. To allow for optimal selectivity, while providing stable uninterrupted energy supply, any fault and its location need to be quickly identified and the information immediately transmitted to the tunnel control system. Special remote services enable access to stored programs and protective data via Ethernet-LAN.

Several hundred ABB vacuum-impregnated dry type transformers ensure the 50 Hz energy supply in the tunnel as well as the energy supply for the emergency backup system. The transformers distinguish themselves through low energy loss, high efficiency, high overload protection and short circuit strength and their low maintenance needs over years of active operation. In addition, ABB delivered all dry-type and oil immersed transformers that are required in the buildings at the tunnel entrances and that serve the 50 Hz energy supply.

The lighting system in the tunnel consists of more than 10,000 orientation lights and 450 escape route lighting systems. ABB installed PMA cable protection systems more than 21 kilometers in length for the electrical lines powering this lighting. The systems have excellent fire protection properties and are impervious to water and dust.

The ventilation system also meets the tunnel's high safety exigencies and ensures an energy efficient operation. ABB delivered the medium-voltage and low-voltage distribution systems, including drive transformers and converters (ACS1000) for tunnel ventilation as well as the low-voltage components (switches and soft starters) for the 24 jet fans at the tunnel portals. Also included in the delivery is the controller (AC800M), communication, instrumentation of the ventilation system and its sensors. SBB built two maintenance and intervention centers in Biasca and Erstfeld to handle tunnel maintenance. The energy supply must be highly reliable for the operation of these facilities, so that employees can take the necessary actions if incidents occur. ABB installed an uninterruptible power supply system (UPS) at both locations. Each one has a Conceptpower DPA 250 UPS with output power of 90 kVA to protect critical loads against short-term power outages and fluctuations.

[Contributing to the work of a century](#)

ABB previously supplied the drive system with an ACS 6000 and a synchronous motor for the elevator in the Sedrun access tunnel, which moves excavated rocks, construction material, machinery and people. In Sedrun, ABB also installed a pump system with electrical setup and automation technology to pump water that accumulates at the construction site to the surface 850 meters above the site. In 2016 – when the tunnel opens – ABB's units will start contributing to the safe passage of millions of passengers through this work of the century over decades to come



Conceptpower DPA 250 UPSs protect critical loads against short-term power outages and fluctuations.

PCS100 AVC-20

Active Voltage Conditioner for continual voltage regulation - 250 kVA to 3,000 kVA

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.

Benefits to your business

+ Increase operational reliability

- Achieve consistent processes
- Increase the lifetime of your equipment
- Experience fewer equipment malfunctions
- Improve the quality of products and services
- Reduce usage of expensive critical back-up systems

A fluctuating voltage supply affects productivity and the consistency of operations, leading to a reduction in the quality of products and services. It can also lead to increased wear on machinery components, resulting in a greater number of malfunctions and a reduced life expectancy of equipment. The PCS100 AVC-20's fast, accurate voltage regulation secures productivity by improving consistency in operations and reducing the impact of fluctuating voltage on equipment and production.

+ Reduce costs

- Optimize your energy usage
- Improves motor efficiency
- Better use of your resources
- Increase your usage of cheaper utility power

Brownouts, over-voltages and an unbalanced voltage supply could cause motors in equipment and machinery to function inefficiently and result in poor use of resource, in terms of staff, materials and energy consumption. It can also cause reliance on costly back-up systems, such as diesel generators. The PCS100 AVC-20 ensures a regulated supply of voltage, helping streamline operations and optimize resource to reduce wasted capacity and improve the return on operational investment.

To find out more:

Web: www.abb.com/ups



PCS100 AVC-20 Active Voltage Conditioner



Protecting a leading data center service provider

PRONIX selects ABB's DPA UPS for the TTC TELEPORT data center in the Czech Republic.



In October 2015, PRONIX finalized the development of a data center in the Czech Republic for TTC TELEPORT. With a floor area of 8,000 m², the data center is the largest in the country. The project included a new backup power supply concept with ABB DPA UPSs.

TTC TELEPORT is a leading provider of data center services in the Czech Republic. Their DC1 data center was running out of capacity to satisfy the needs of new clients so a new data center - DC2 - of 4,000 m² in site for customer hardware, was planned.

PRONIX, a long-standing ABB channel partner in the Czech Republic, entered the project as the investor's technology consultant, tasked to assess the state and quality of work done by the original lead project designer. The original technical solution was found to suffer from a number of major defects that led the investor to make radical changes. The lead project designer was withdrawn and the entire project was redesigned by a new group.

In a record time of just four months, PRONIX developed a brand-new backup power supply concept for the entire data centre with a total capacity of 9 x 1,600 kVA. One of the key components of this was the medium voltage (MV) power supply, which complies with the globally recognized Uptime Institute TIER 3 security standard, as securing the ongoing processes of the TTC TELEPORT data center represents a key requirement of the entire project. The proposed concept and the backup power supply technology were designed so as to ensure maximum reliability and availability levels. As a UPS, ABB's Conceptpower DPA was selected and two Conceptpower DPA 500s and two Conceptpower DPA 250s were installed.

ABB's Conceptpower DPA and DPA 500 are true double conversion modular UPSs designed for medium and large sized critical applications. The robust, proven modular architecture provides very flexible power configuration based on different sized modules that can be added as power requirements grow. This eliminates oversizing, reduces energy costs and minimizes upfront capital investment. Each DPA module is self-contained and can be online-swapped at any time, so nothing has to be transferred to the bypass or switched off, making routine maintenance safe and easy. A Conceptpower DPA UPS can be expanded step-wise up to 1.5 MVA and a Conceptpower DPA 500 UPS step-wise up to 3 MW.

As the power backup performance demands are so high, PRONIX also supplied 1,600 kVA FG Wilson diesel generators by Caterpillar.

Prior to commissioning, the entire data center system underwent a number of tests, including load tests. More than 800 partial functional tests of the individual subsystems and load tests of the individual technologies were performed with a simulated operating module load of 700 kW IT/module. Testing was concluded by a general integration test of all technologies simulating standard operation as well as non-standard random defects. At the end of November 2015, a grand opening of the new TTC TELEPORT DC2 data center took place in Praha Malešice.

“We highly appreciated the cooperation with TTC TELEPORT that started several years ago and was crowned by completion of one of the major data centres in the Czech Republic and, indeed, Europe. The project further cements the reputation of the Czech Republic being a European leader in data center development,” says Krzysztof Józef Górski, owner of PRONIX. “Our excellent collaboration with ABB on the UPS side meant we were able to provide the customer with best-in-class UPSs that not only met the current backup power reliability and availability needs but also that could be easily expanded in future to meet the increases in data storage demands that are inevitable in our age of digitalization,” adds Lenka Frydrychová, Executive Director of PRONIX.

“The data center was built in line with the anticipated schedule, quality and budget. Our cooperation proved to be efficient and we are already working on the next stage of the data center,” comments Radek Majer, CEO of TTC TELEPORT.





PCS100 MV UPS. Complete power protection at medium voltage.



ABB produce a range of static PCS100 medium voltage UPSs that achieve exceptionally high operational efficiencies, with a small foot print, high reliability, and ruggedness in their ability to handle industrial fault levels. The PCS100 MV UPS can be installed with a range of energy storage options, making the product an attractive choice for protecting large critical loads in mega data centers. Visit www.abb.com/ups

Power and productivity
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Powering the pharmaceutical industry

Power conditioning solutions for the pharmaceutical manufacturing industry.

The pharmaceutical manufacturing industry is an essential component of health care systems around the world, as pharmaceutical companies develop and produce a number of medicinal and other health-related products that save the lives of millions of people every year.

Most pharmaceutical production plants are highly automated. Milling and micronizing machines, which pulverize substances into extremely fine particles, are used to reduce bulk chemicals to the required size. These finished chemicals are then combined and processed further in mixing machines. The mixed ingredients may then be mechanically capsulated, pressed into tablets, or made into solutions. One type of machine, for example, automatically fills, seals, and stamps capsules. Other machines fill bottles with capsules, tablets, or liquids, and seal, label, and package the bottles.

Voltage sags and short interruptions are, by far, the two most common types of power quality disturbances and the most frequent causes of disrupted operation of many industrial processes, particularly those using power electronics equipment. Pharmaceutical manufacturing is a highly sensitive process that involves a number of precisely controlled steps, as well as the prerequisite to comply with the stringent sterility standards set by the various drug regulatory bodies. Therefore the requirement to source a suitable power protection solution to produce a continuous production output without any interruption is critical.

What are your power protection options?

ABB's power protection product portfolio consists of a comprehensive range of UPSs and power conditioners that can protect the pharmaceutical manufacturing facility from disturbances in the electrical supply.

The PCS100 Active Voltage Conditioner is a "battery free" solution designed to correct the most common utility problems, which includes voltage sags, along with swell protection and continuous voltage regulation. The PCS100 AVC-40 provides instant voltage sag and surge correction, ensuring maximum productivity. It offers +/- 10% constant voltage regulation as well as a full correction of 3 phase sags down to 60% of the remaining voltage. Whilst the PCS100 AVC-20, designed for industrial and large commercial operations in environments where an unstable network or utility voltage affects productivity, ensures a continual, regulated supply of utility voltage where the electric infrastructure is stressed, unstable or unreliable.

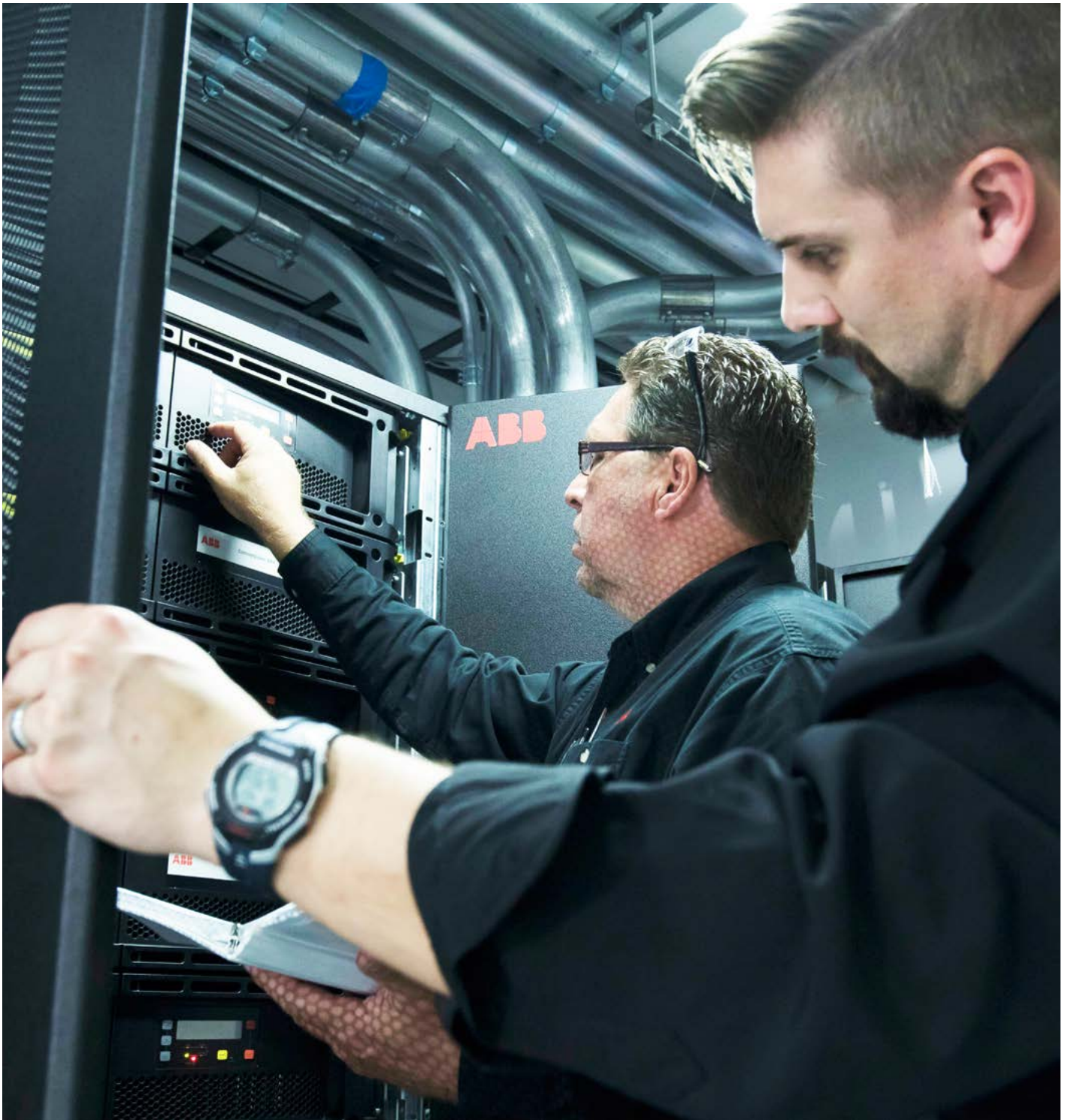
The PCS100 UPS-I is tailored towards the demands of industrial applications such as sensitive tools, motors, drives etc. It also provides protection during deep sag and swell events, plus outages lasting between seconds and minutes depending on storage (super capacitors or batteries) and system loading. Payback time for a PCS100 UPS-I is typically less than 12 months as the problems it protects the plant from can be so expensive. The ultra-fast transfer time of less than 2 milliseconds, the exceptionally small footprint – 50 percent smaller than competing solutions, and the long and more economical operating life are also attractive features of the PCS100 UPS-I.

A solid relationship is key

ABB has developed and installed many power protection solutions for the pharmaceutical industry, including Apotex Inc, the largest Canadian-owned pharmaceutical company. A large 4.8 MV Active Voltage Conditioner was supplied to Apotex which immediately corrected voltage fluctuations and within six weeks of commissioning it compensated for forty-two events and the total installed cost was paid back within three months.

To find out more about ABB's PCS100 power conditioning solutions for the pharmaceutical industry, please visit:
Web: www.abb.com/ups





Solving a data center's need
for rightsizing and simple
scalability

Volico Data Centers made a smart decision when they implemented their pay-as-you-grow strategy. Rather than building out their entire data center, their initial facility was built with a plan to grow as needed. Unfortunately when they were ready to grow they discovered their UPS lacked the scalability and flexibility needed to support that growth. Faced with a major roadblock to expansion, Volico reached out to ABB for help.

“We have a long history of providing both maintenance and product to Volico,” explains Amanda Trumble, Regional Sales Manager, Power Protection for ABB. “When they contacted us about their situation, we were able to provide technology that perfectly fit their current need and offer easy scalability to match future requirements for scalable growth with high availability.”

That technology is the Conceptpower DPA 500 UPS, which is suitable for large and mid-sized data centers, server rooms, and other IT infrastructure. While only recently available in the US, the technology has been successfully proven in other markets globally. It features an architecture that ensures the highest level of both reliability and availability by providing true, total redundancy across the UPS modules.

“The ABB modular UPS gave me exactly what our data center needed to enable current and future expansions. At the end of the day, ABB provided the best solution to keep Volico up and running.”

Reliability

“DPA stands for decentralized parallel architecture,” explains Joergen Madsen, Business Development Manager, Power Protection. “The main appeal of this UPS design is that it proactively eliminates or dramatically reduces single points of failure. Every power module is its own fully independent entity, with its own control and all needed hardware. As long as there are more modules than needed to supply the load, one or more modules can be lost with no power interruption. “Other modular products contain shared components which present single points of failure. The modules of the Conceptpower DPA 500 are totally independent, offering full redundancy.”

Efficiency

Other UPS suppliers achieve the same >96% energy efficiency that the Conceptpower DPA 500 delivers, but not at the same reliability levels.

“Many data-center owners and managers like me expect – and increasingly demand – both high availability and efficiency,” says Gadi Hus – Volico’s Owner and Director of Operations. “That’s what’s delivered in the Conceptpower DPA 500.”

“A decade ago, UPS efficiency was in the high 80% range,” says Madsen. “The resulting, high losses were a costly toll, but data center managers accepted them in return for reliable, quality power. The Conceptpower DPA 500 technology provides Volico with the best of both worlds; high online efficiency combined with very high reliability.”

Scalability

What prompted the search for a new UPS supplier was Volico’s need to expand, something Hus will be able to do with ease in the future. His initial installation consisted of two frames containing 10 module sets, delivering 1 MW. Adding more power will be as easy as inserting another module.

The system is based on unique slide-in UPS module sets, each rated at 100 kW. Modules can be inserted or removed from the frame while the system is running securely in double conversion. The Conceptpower DPA 500 can scale vertically, up to 500 kW in a single frame, and

horizontally by adding up to six parallel frames, to a total of 3 MW of power. With ABB’s new modular UPS solution, Volico’s power needs will be easily covered – up to the full potential capacity of the data center.

Cost of ownership

Volico can expect lower operating costs because the Conceptpower DPA 500 provides low total cost of ownership compared to other UPS systems. The savings begin with speed and ease of installation. The straightforward front access only design, combined with a true three wire plus ground system, simplifies every step of deployment. Additionally, the Conceptpower DPA 500’s “online-swap modularity” (OSM) capability, allowing modules to be inserted and removed with the UPS running, simplifies routine maintenance and eliminates service-related downtime.

3 MW of scalable power



Finally, but especially critical to Volico, is the pay-as-you-grow capability. The operator can invest in additional capacity in 100 kW increments as needed. The Conceptpower DPA 500 offers reliable redundant power in a very compact footprint, and significant savings on operating cost thanks to its very high online efficiency.

Summary

For Volico, the Conceptpower DPA 500 perfectly resolved the short-term need to replace a system that was a barrier to expansion, and lays the foundation for future growth.

“Many things played into the success of this project,” says Hus. “ABB’s modular UPS gave me exactly what our data center needed to enable current and future expansions. At the end of the day, ABB provided the best solution to keep Volico up and running.”

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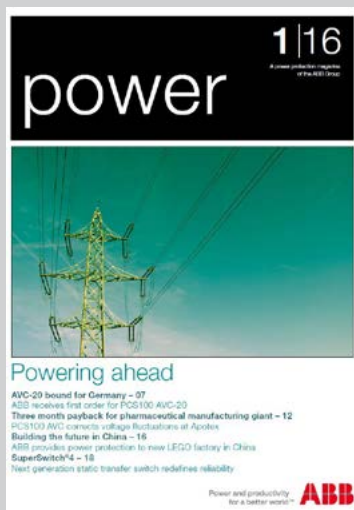
View the video:



Solution details

Each module includes:	
	<ul style="list-style-type: none"> - True online double-conversion UPS - Decentralized module isolator - Built-in back-feed protection - Individual module display with LED mimic diagram
Each frame includes:	
	<ul style="list-style-type: none"> - UPS input and output terminals - Battery breakers and output isolation switches for each module set - HMI interface with mimic diagram and LCD providing information in 13 languages - Communication interfaces (RS-232 and USB ports, I/O dry contacts and external bypass interlock) - Top or bottom cable entry

Powering ahead



- 07. AVC-20 bound for Germany**
ABB receives first order for PCS100 AVC-20
- 12. Three month payback for pharmaceutical manufacturing giant**
ABB's PCS100 AVC corrects voltage fluctuations at Apotex
- 16. Building the future in China**
ABB provides power protection to new LEGO factory in China
- 18. SuperSwitch®4**
Next generation static transfer switch redefines reliability

Perfect power



- 10. Protecting the South Pacific Games**
ABB provides power protection solutions to Papua New Guinea
- 12. Conceptpower DPA 120 and DPA 240**
ABB's The modular UPS for small and medium-sized data centers
- 16. In search of the perfect UPS**
Perfect power is the dream of every data center manager
- 18. Full power for industrial applications**
ABB's rugged UPS PowerLine DPA



A UPS for extreme industrial environments?

Absolutely.



The Cyberex® PowerBuilt™ is a true online double-conversion industrial UPS designed to support the continuing demand from downstream refining and petrochemicals, upstream oil and gas, power generation, and the growing regulatory and safety needs of today's industrial complexes. The PowerBuilt™ Series UPS is designed to UL 1778 safety and IEC 62040-3 performance standards; and therefore, it can be scaled to meet changing electrical requirements and is adaptable to the most stringent technical specification.

www.abb.com/ups

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