

Healthcare Facilities

Optimized Power & Control Solutions

**Nothing is as precious
as a patient's smile**



A major challenge for the health sector today: combining continuity and quality of healthcare whilst optimizing building investment and operating costs.

Besides their prime mission of ensuring the quality and continuity of healthcare, public and private healthcare facilities need to:

- satisfy increasing requirements from medical staff and patients in terms of safety and comfort,
- be part of an increasingly strict standards-based and legislated environment,
- provide the best levels of building operation traceability,
- find the right balance between operating constraints and cost optimization: installation, energy expenditure, maintenance,
- identify the best financial compromise between initial investments and installation flexibility.

Schneider Electric: a partner who knows your business and understands your needs.

Thanks to its leadership in Power & Control and its expertise in energy management and energy performance enhancement, Schneider Electric has developed a range of solutions over many years which optimize both performance and cost. These solutions are specially designed for the healthcare sector and allow professionals to focus on their business whilst remaining assured that they have safe and comfortable buildings and a perfectly secure electrical power supply in critical areas.



Florent Rovello

Assistant General Director, Saint-Joseph Hospital, Marseilles, France

«As France's largest private hospital, with 800 beds, we know that energy quality and availability are mission critical. That is why we turned to Schneider Electric to modernize our electrical installations and bring them into compliance with the latest standards. The goal is to find the perfect balance between the electrical network architecture, the installed products and equipment and the operating and maintenance departments to ensure impeccable service for our patients now and in the future.»

> Safety and traceability

Protection against power outages: lives at stake.

A hospital needs a permanent electricity supply to carry out its tasks and to ensure the general smooth running of the facility. Critical areas cannot tolerate any power outages: operating theaters, intensive care units, laboratories, lifts, IT systems to access patient medical files, etc.

A power outage can have serious consequences. For the patients, but also for the facility management team which has the legal responsibility to ensure the continuity of the electrical power supply. As zero risk does not exist, information traceability will enable the team to prove that everything was done to prevent possible power failure and that corrective measures were taken.



With its optimized solutions Schneider Electric covers the whole electrical distribution installation from the medium voltage intake through to equipment power supplies, and is present throughout the building's life cycle.

Schneider Electric uses exclusive software to propose an architecture which is optimized in terms of availability, reliability, maintainability and costs.

■ **High availability power:**

- Standby electrical power supplies and secured source transfer to automatically switch to the backup supply in the event of a power outage.
- Dual power supply structure for technical areas (operating theaters, intensive care units, etc.).
- Selective tripping in the case of a short-circuit.

■ **High reliability power:**

- Switchboards and components that are manufacturer tested and qualified for critical equipment.
- Busbar trunking systems with enhanced-reliability industrial connections.
- High quality key system components: source transfer, low voltage switchboard, uninterruptible Power Supply.
- Preventive maintenance plan.

■ **High quality power:**

- Uninterruptible Power Supply systems to avoid power outages during change overs and to protect equipment from overvoltages.
- Separation of UPS, IT and medical networks to minimize the risks of "harmonic pollution".

■ **Global monitoring system :**

- Protection switchgear are used for metering and control. Moreover, a web server is integrated into the electrical switchboard.
- This allows traceability of events at source, immediate remote actions, increased reliability of the information system, anticipation of malfunctions and control of costs.

■ **Simplified maintenance plan:**

- Without interrupting critical power supplies by using standby equipment.
- Quick intervention due to simple architectures and the appropriate, withdrawable or disconnectable equipment.



Hieu Phan

Chief Engineer, Westmead Children's Hospital, Sydney, Australia.

« Without Schneider Electric-TAC's building management control system, we would need an army of people to run our facilities. In fact this may be the only hospital of its size in Australia to operate without a 24-hours operator on site. »

> Cost control and energy efficiency

Optimizing the investment and profitability without compromising the service level.

In parallel with the quality of healthcare provided to patients, the comfort of working conditions for medical teams, the technological performance of available equipment and the safety of installations, a well run healthcare facility must satisfy one other key requirement: optimizing its investment and operation costs.

There are several possibilities to reduce investments:

- > reducing the construction lead time by using the appropriate equipment,
- > simplifying electrical and control architectures, e.g. by using a single, standardized communication network.

And to minimize operating costs, there is one key aspect:

- > keeping control of power costs, which is one of the highest costs, by setting up power efficiency measures.



Schneider Electric's optimized solutions meet this dual objective with:

■ **Structured broadband Ethernet cabling:** image, sound, telephone on IP, guaranteeing immediate access to key information like medical imaging, patient IT file...

■ **Factory-built equipment:** i.e. choosing factory-built busbar trunking systems for electrical distribution to hospital wards enables the installation time to be reduced by half.

■ **Metering and monitoring power consumption,** with sub-metering by zones, to identify discrepancies, commit to corrective actions and analyze performance relative to the sector standards.

■ **Equipment to reduce power costs,** in particular power factor correction.

■ **Appropriate services which allow reduction of day-to-day operating costs through:**

- energy efficiency programs,

- remote infrastructure supervision and generating of operating reports,

- regular preventive maintenance carried out by trained personnel, which allows the risk of building non-availability to be divided by 10.

■ **Open integrated systems using Ethernet TCP-IP type user interfaces:**

- which optimize time to integrate equipment and technician training,

- which are designed for global building control by combining electrical, climatic and safety applications. Choosing open-ended integrated building energy Management systems gives a major boost to performance.

Investments can be reduced in certain cases by up to 24% and operating costs up to 30% when comparing with non integrated systems.



Trevor Lowerson

Operations Director of Skanska, UK-Leading PFI Service Provider
Derby Hospital – Derby City General Hospital and Derbyshire Royal Infirmary project.

«We wanted to work with a company that was prepared to invest time and resources into developing an innovative solution in final distribution using plug and play technology. Schneider Electric provided recommendations that were detailed, specific and original which we could then turn into practice. We were so delighted with the success of this installation that we are now using a similar approach at other hospital sites.»»

> Comfort and peace of mind

A modern, comfortable and reassuring environment for the well-being of patients and medical staff.

A healthcare facility faces tough economic requirements. Its reputation primarily relies on the quality of the healthcare it gives and the medical equipment that it has. To this is added the quality of the environment proposed to patients and medical teams.

Offering nurses and doctors a working environment in which they can work in complete trust and serenity, as well as providing patients a place where they feel comfortable throughout their stay, is another way of making a difference.



Schneider Electric solutions allow you to provide the best comfort by enabling all types of equipment to be integrated and controlled whilst reducing power consumption and costs.

■ **Precise and traceable environment control:**

- Regulation of operating theater environments in line with legal and standards constraints.
- Temperature, humidity and air flow control at any place in the building – including pressurization of wards for patients who have had major operations (i.e. a bone marrow graft) or depressurization of isolation patients' wards.

■ **General environment control:**

- Whatever time of night or day, being sure of having the right lighting and temperature levels both in medical wards and common areas.

■ **Equipment for medical ward comfort:**

- Ward bed units with lighting control, shutters, room temperature and built-in electrical sockets.

■ **Equipment for the safety of people and property**

- Fire alarm, intruder alarm, access card control for critical areas like maternity, car parks, emergency ward.
- Lighting and marking of emergency exits and routes.
- Video surveillance, remote alarm management.

■ **Single supervision system to boost performance**

- Simplification of operation through functions being combined in a single supervision system.
- Possibility of telemaintenance work.
- Round the clock technical support.

■ **Open and standardized communication networks**

- based on "web" technologies.

Optimized Power & Control solutions which increase healthcare facility performance and reduce investments and



Medical ward Guaranteeing the comfort and wellbeing of the patient

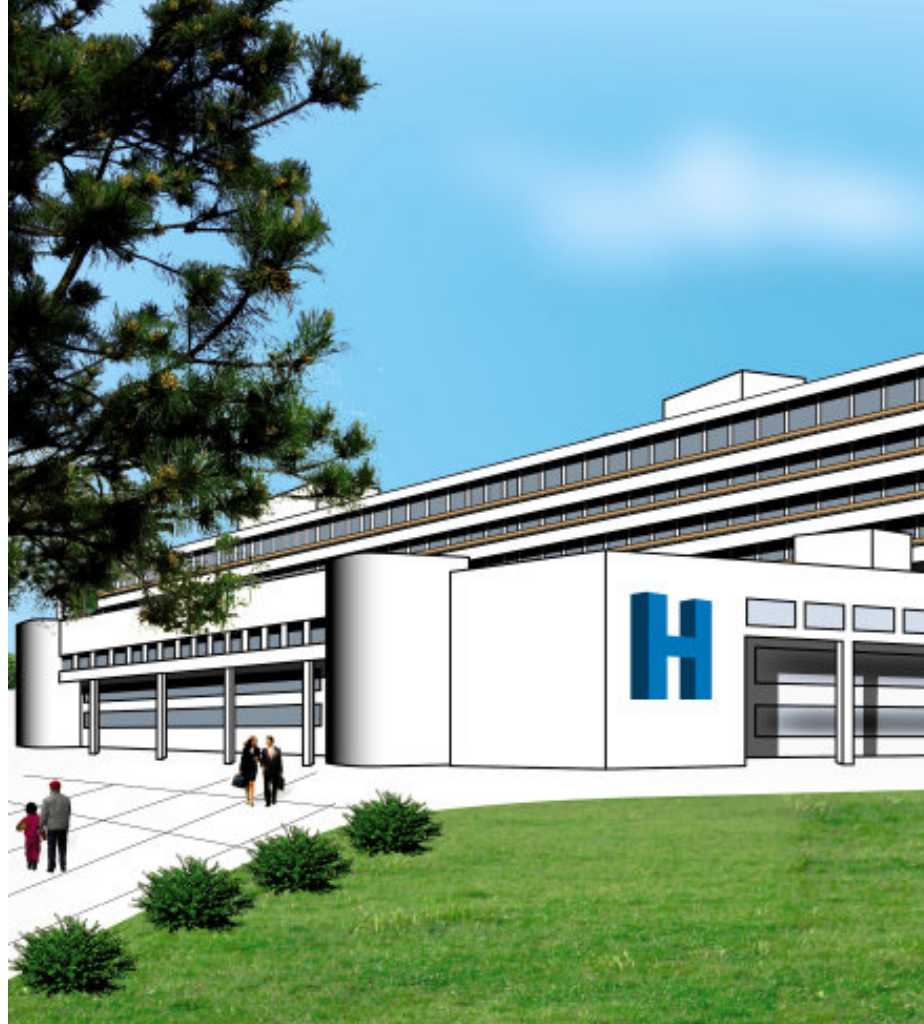
- Bedhead units
- Control of air conditioning, ventilation and heating equipment
- Lighting and shutter control
- Switches and sockets

Technical rooms Ensuring the quality and availability of electrical power at any point in the building

- MV and LV distribution
- Busbar trunking systems
- Type-tested switchboards
- Back-up gensets
- Automated source transfer



- High Quality Power Supply – UPS
- Surge protection
- Monitoring and control
- Harmonic filtering



Reception and consultation area Guaranteeing easy access to information wherever you are

- Single IT infrastructure shared by all networks: IT and telephone, including voice on IP technology
- Flexible and modular installation systems

Operating theater Faultless electrical power supply combined with a traceable air humidity and temperature control system

- Operating theater switchboard: Prisma Medical warns us in the case of any malfunctions and enables real-time operating theater parameter modification
- Air treatment equipment control



operating costs.



Operation & Maintenance

Optimizing operation and maintenance

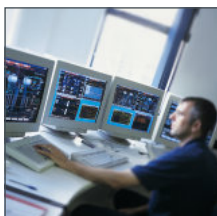
- Managing the building and its installations
- Preventive maintenance, installation diagnosis
- Reducing downtime and repair time
- Reducing costs by using open-ended, integrated systems
- Feasibility studies



Access

Ensuring security and access control

- Security lighting and fire detection
- Lighting control
- Access control
- Video surveillance



Monitoring stations

Guaranteeing the safety of people and property

- Video surveillance systems
- Access control
- Fire detection
- Intruder alarm
- General building supervision
- Operating and maintenance coaching service

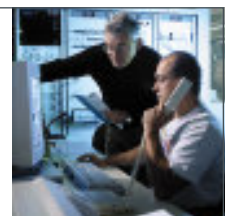
Energy efficiency

Controlling and managing consumption

- Managing fluids and energies (water, gas, electricity, air, oil, etc.)
- Analyzing consumption, corrective recommendations
- Detailed sub-billing

Reducing energy consumption and costs

- HVAC equipment control
- Lighting and shutter control
- Reactive power compensation
- Power performance services



Diversifying power sources and automatically switching to the least expensive at a given time

- Gensets, public heating or air cooling networks



Schneider Electric optimized Power & Control solutions: a unique concept

The services associated with Schneider Electric optimized Power & Control solutions help to improve the performance of the installations throughout their life cycle:

- enhancing overall energy efficiency
- reducing power consumption
- reducing energy costs
- reducing investment
- ensuring installation reliability and dependability
- reducing power outage
- reducing downtime and repair time,
- training of operating and maintenance teams
- extending equipment service life

The originality of Schneider Electric's optimized Power & Control solutions involves providing a comprehensive response to all healthcare facility requirements. This overall approach enhances the building's performance and has an impact on all those involved: patients, healthcare staff, facility management, contractors, investors, etc. Indeed these solutions help to give the best healthcare conditions and optimize operating costs.

Schneider Electric's capacity to satisfy all requirements allows project managers to limit their suppliers and benefit from dedicated contacts with a perfect knowledge of their project and requirements.

The logo for 'Optimized Power & Control Solutions' is presented on a white, tilted rectangular background. The text 'Optimized' is in a dark grey font, 'Power' is in red, '&' is in a large, stylized grey font, 'Control' is in red, and 'Solutions' is in a dark grey font. A thin grey line runs horizontally through the middle of the text.

Schneider Electric's Optimized Power & Control solutions:

- 1. Minimize investments and operating costs** for Schneider Electric customers and maximize their performance in their business.
- 2. Include the very best Schneider Electric products and equipment.**
- 3. Are based on tested architectures** and over 50 years' expertise in the healthcare facility sector.
- 4. Are built on open communication protocols** for a maximum interoperability allowing to minimize investment and operating costs.
- 5. Include a range of dedicated services covering the whole of the building's life cycle:** energy efficiency audit, installation design, operating assistance, maintenance and replacement, customized services.
- 6. Meet precise performance criteria:** electrical power availability, energy efficiency, comfort, safety, scalability and return on investment.
- 7. Allow implementation by local partners** through factory-built products which simplify installation and reduce maintenance costs.
- 8. Are designed to be part of a sustainable approach to environmental protection.**
- 9. The products and equipment in these solutions are available through a major distribution network** covering more than 130 countries.



Enhancing performance
while keeping in control
of the environmental
impact

In a world where energy is a major economic and environmental challenge, Schneider Electric makes electricity help its customers to be more efficient.

Schneider Electric designs and implements integrated, smart and communicative solutions to increase its customers' competitiveness and satisfaction.

> **Electrical distribution** to make the electricity available, reliable and high performance in complete safety.

World No. 1 in electrical distribution and No. 2 in installation and control systems

> **Automation and control systems** to monitor and control equipment and buildings, protect people and property.

World No. 1 in video surveillance and No. 3 in building automation systems

> **Secure energy** to guarantee a reliable and continuous electricity supply, particularly for sensitive applications.

World No. 1 in secure power systems

■ A leader's expertise and innovation

In order to always go further in meeting its customers' requirements, making electricity increasingly safe and easy to use, Schneider Electric implements an ambitious innovation, quality and efficiency policy. Almost 5% of its turnover is invested in R&D. 6,500 researchers and developers work hard to continuously provide more value for users by focusing on energy efficiency, easy implementation and operation and the scalability of equipment and installations. In addition, by combining automation and internet approaches, building energy management systems constantly offer new ways of keeping costs under control.

■ Services for smarter features in all sectors

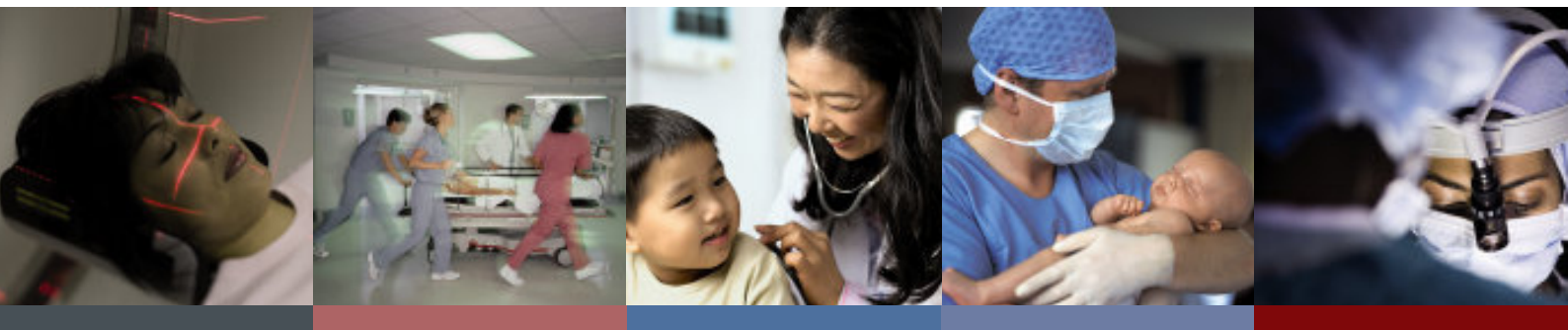
Schneider Electric is permanently enhancing its service offer to partner with its customers throughout their installation's life cycle. To give more independence it provides call centers, online diagnosis and technical assistance services and a host of internet services: e-catalogs, software downloads, information and training.

■ A worldwide presence to be closer to our customers

With 105,000 employees in 106 countries and an extensive network of partners, distributors, panel-builders, installers and engineering offices, Schneider Electric values close relations with its customers in order to have an in-depth knowledge of their applications, working side by side with them to achieve the best performance levels.

■ A responsible company for the planet and for society

As a signatory of the WHO Global Compact, Schneider Electric has put sustainable development at the heart of its strategy. Its solutions contribute to energy saving and giving access to electricity to those who do not have it. 91% of our sites are ISO 14001 certified. The Schneider Electric offer satisfies all current standards throughout the world – ISO, IEC, Nema, UL, ANSI, BS, CCC, JIS.



Schneider Electric Industries SAS

43-45 Bd. Franklin-Roosevelt
F-92505 Rueil-Malmaison
FRANCE

Tel: +33 (0) 1 41 29 70 00

www.schneider-electric.com

Owing to changes in standards and equipment, the characteristics given in the text and images in this document are not binding until they have been confirmed with us.

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Contact: Véronique Fischer

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