N° 21 Issue 1/2009

SAUTER FACTS

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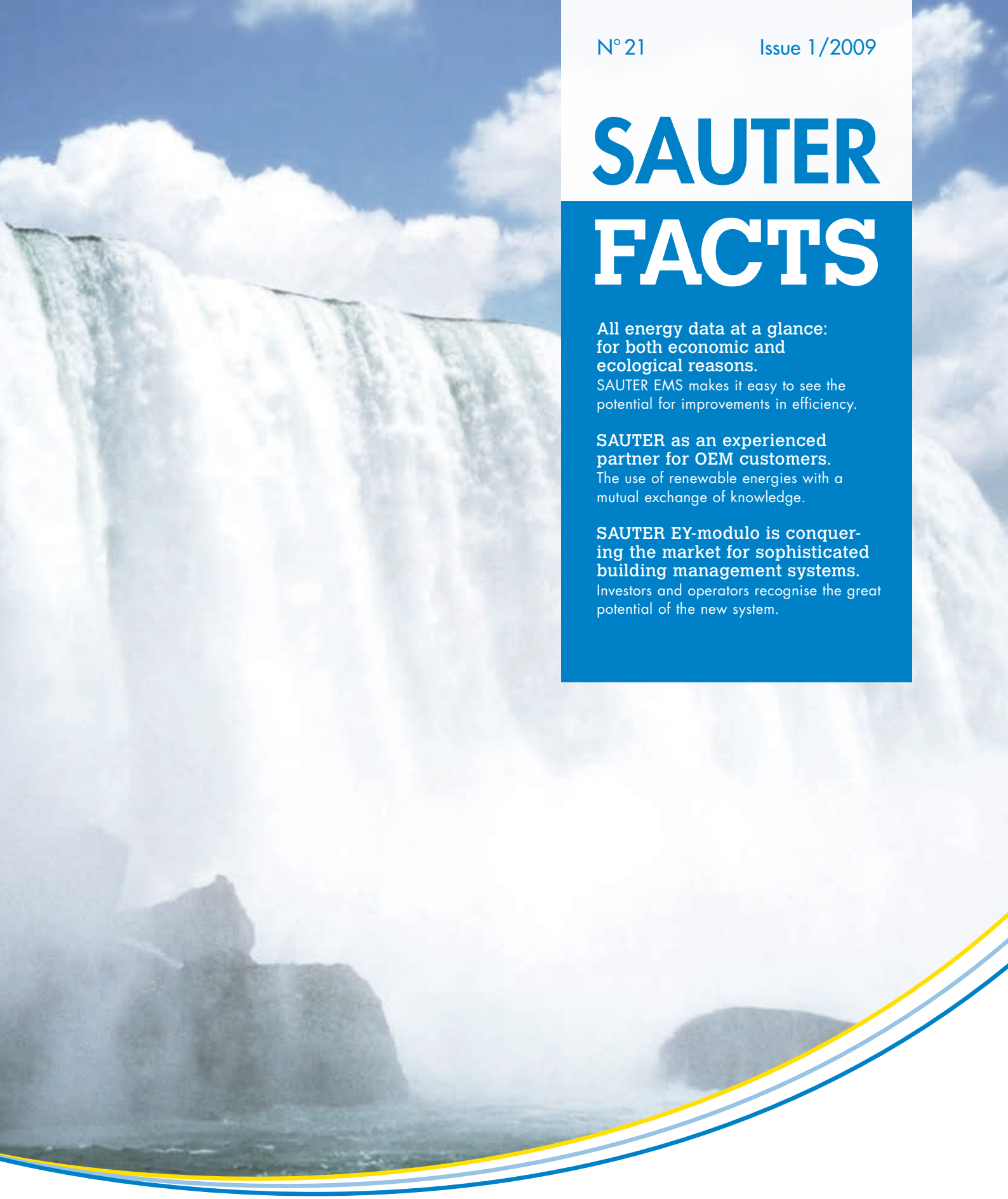
SAUTER as an experienced partner for OEM customers.
The use of renewable energies with a mutual exchange of knowledge.

SAUTER EY-modulo is conquering the market for sophisticated building management systems.
Investors and operators recognise the great potential of the new system.



The magazine for SAUTER customers

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PUBLICATION DETAILS

Sauter Facts, the customer magazine of the SAUTER Group
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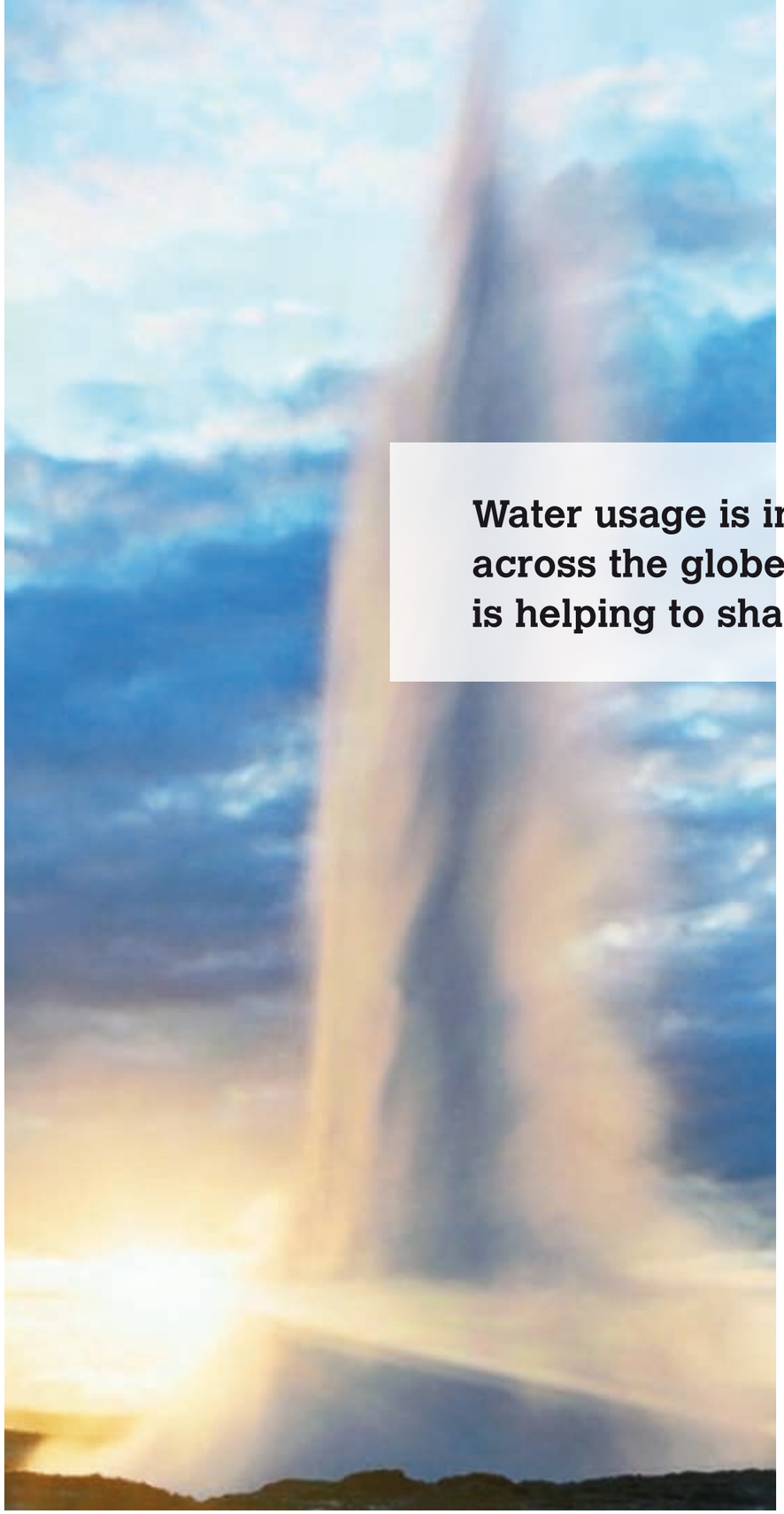
Internet: www.sauter-controls.com
Responsible for content: Rudolf Maier
Layout: KUP, Ebikon
SAUTER FACTS is published in German, Dutch, English, French, Italian and Spanish.
Reprinting allowed with acknowledgement of source.
More copies can be requested from SAUTER HeadOffice.



Water usage is in a state of flux across the globe – and SAUTER is helping to shape new trends.

EDITORIAL

Water is the predominant element on our planet. As well as being the basis of life, it is a source of energy and an energy medium. Its heat content or temperature differences determine the internal energy; and when water flows, it creates kinetic energy. Man has been exploiting both types of energy since time immemorial. But it is only in our own era that the use of water has been considered from the ecological viewpoint as well as in technical and economic terms.

Bertram Schmitz, CEO, SAUTER Head-Office and the SAUTER Group

Dear Readers,

Adequate quantities of water are available throughout the world, but they are unevenly distributed. This leads to differences in the way water is treated – while it is squandered in many regions of the northern hemisphere, it is an extremely precious commodity in many tropical or sub-tropical arid zones, where it has to be used with the utmost economy. The less water that is available for effective use, the more difficult it becomes to separate drinking water from water for other industrial or domestic uses, which also makes the hygienic treatment of water more difficult. Another factor is that water sources such as rivers, lakes and oceans are over-used or polluted in many parts of the world. In consideration of the ecological equilibrium, this situation has not only local but also, ultimately, global consequences.

All these factors make it even more important to consider water in terms of global responsibility, wherever and however we use it.

SAUTER makes it possible to use water efficiently, as appropriate to each situation
It is well known that water's thermal properties make it an ideal medium for heating and cooling buildings. It is used for specific purposes in each of its chemical states – as ice, as a liquid or as steam.

SAUTER makes cutting-edge measurement and control technology available to ensure that water is used as sparingly and efficiently as possible, and always with the total energy requirement in mind. Examples include our flow-optimised valves, actuators with low power requirements, controllers with automatic adjustment according to room occupancy and the SAUTER EY-modulo system family with its excellent adaptability to changing building dimensions and types of usage.

This issue of SAUTER Facts explains at first hand how SAUTER contributes its know-how to resource-efficient building management throughout the world, as well as updating you on the latest news in other areas.

Bertram Schmitz

Energy efficiency and the wide-scale change-over to renewable energy sources are developing into key economic factors.

SAUTER thinks ahead and enables the increasingly efficient use of all types of energy.

The era of abundant supplies of cheap fossil energy is over. Even though prices are falling at present, all the experts agree that they will rise again. It is essential to adjust to this situation on a long-term basis – and to do so right now: by taking advantage of every option for obtaining, distributing and utilising renewable energies in ways that ensure volume and cost efficiency. SAUTER is making major contributions towards these goals in the building management sector, traditionally its core area of activity.

Our products and services support all the other aspects of building technology that promote an efficient approach to water and energy as a whole. For example, we create the conditions for effective energy management in systems of any provenance. We also ensure that compound heat-generating plants, heat accumulators and ice banks can operate with maximum economy. And, thanks to our products, a concrete-core temperature-control system with water can respond promptly to changing weather conditions.

Our global presence meets a wide variety of local requirements

In recent years, the SAUTER name has made its presence felt in more and more parts of the world through our growing numbers of branches and representatives. In November 2008, for instance, SAUTER Middle East opened in Sharjah (UAE), not long after our Romanian subsidiary, SAUTER Romania, started operations in Bucharest.

These two examples show yet again that SAUTER's building management expertise can be put to effective use under widely varying climatic and economic conditions. The efficient use of resources to match the climate within a building to its immediate environment is recognised as an outstanding SAUTER trademark in more and more regions of the world. And when we speak of resources, we mean both natural and material resources. Especially in regions where resources were used very extravagantly in the past, it is becoming clear that a focus on ecological progress will also produce sustainable economic benefits.

The town of Masdar is under construction in Abu Dhabi, in the country where our newest subsidiary has opened; it will provide a CO_2-free living and working environment for 50,000 residents and 1,500 companies, with solar power and solar-powered water desalination plants.

One example of this is the town of Masdar (which means 'source') in Abu Dhabi, planned to accommodate 50,000 residents and 1,500 company premises. February 2008 saw the start of preparatory work on this town, which will be entirely free of carbon dioxide emissions. There will be no cars on the streets; instead, the plans include a tramway which will also link the town to the nearby centre of Abu Dhabi. Food is to be grown organically in the region, rubbish will be recycled and wastewater will be reused. It is planned to produce most of the power from solar energy, and water is to be obtained from a solar-powered desalination plant.

It is certainly no coincidence that SAUTER, with its expertise, now has a local presence in the United Arab Emirates (UAE).

"Ecological urban construction is a key factor in ensuring the living environments of the future."

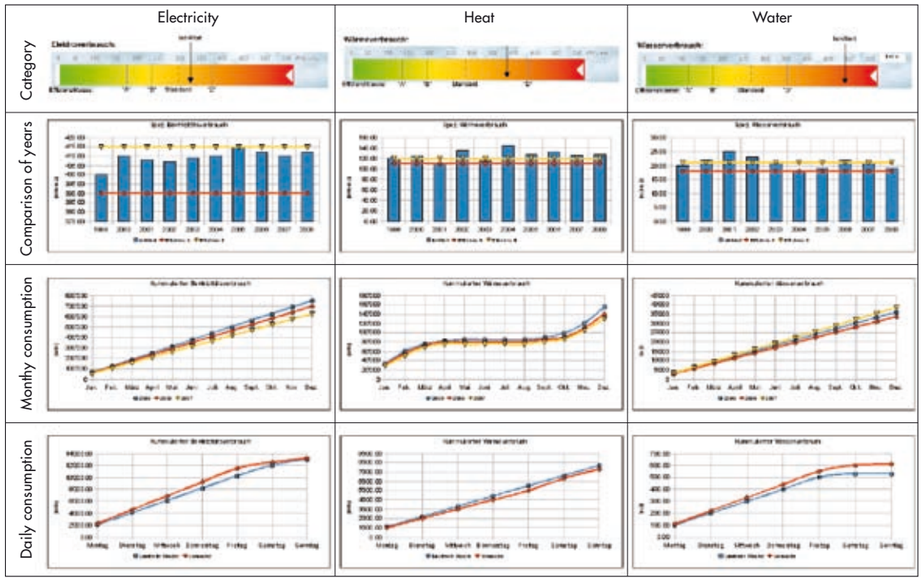
All energy data at a glance: for both economic and ecological reasons.

The SAUTER EMS (Energy Management Solution) software makes it easy to see the potential for efficiency improvements.

In just the same way as modern cars display fuel consumption and have navigation systems to show the best route, consumption recording to identify potential for saving energy (as made possible by SAUTER EMS) is taken for granted in today's buildings. System applications of this sort are nowadays generally included in the tender specifications for major buildings. SAUTER's EMS records, visualises and compares consumption figures and costs over any desired period – the most informative basis ever for all-round active energy management.

"Clear presentation of energy consumption figures allows continuous comparison with normal or special benchmarks for the building."

Thomas Buchmann, International Service Manager, SAUTER HeadOffice



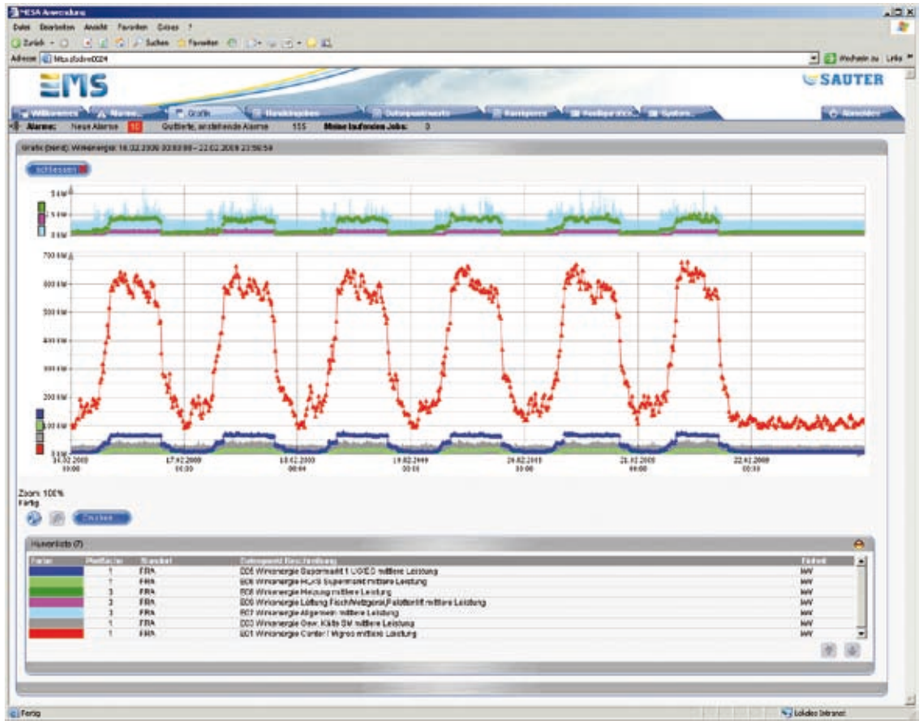
SAUTER EMS allows comparisons of consumption at any time between current and previous periods, and it also tracks the development of energy efficiency.

Everybody is talking about cutting energy consumption, but many people still don't know exactly what this means. In many cases, actual consumption figures are not recorded in detail, nor are they broken down according to energy sources, sections of a building or even whole buildings. How much energy is used, and where, and why? How much could be saved, and where?

The SAUTER EMS software makes it possible to answer these questions precisely, providing a basis for the right actions and conclusions for the future. SAUTER EMS evaluates the energy and water consumption data exactly as desired and specified by the building operator, for example in the form of weekly, monthly or yearly comparisons. Fluctuations in consumption over the course of the day can also be identified. As soon as a specified limit value is exceeded, the system sends out an alarm via e-mail or SMS. This software enables one single central unit to monitor and evaluate data from several buildings in separate locations.

Informative comparisons and realistic benchmarks

Comparisons of energy consumption by heating systems are displayed after adjustment for heating degree days, i.e. different outdoor temperatures and the resultant differences in energy consumption are taken into account, and comparable values are calculated from the data. This is the only way to obtain meaningful comparisons. It is also the only possible way to obtain the efficiency benchmarks that operators set for their buildings and SAUTER specifies as the basis for consultants.



SAUTER EMS provides a continuous dynamic display of the entire energy consumption within an integrated system, as well as consumption figures for individual buildings, sections of buildings or equipment systems.

With the help of dynamic displays, the system can always provide an up-to-date overview of energy consumption figures and the related CO_2 emissions.

System-neutral software operation at the customer's premises or at SAUTER

SAUTER EMS is not tied to a SAUTER building management system: data from non-Sauter systems can also be displayed and monitored in the same way.

SAUTER EMS can be used in two ways. One option is for the building operator to purchase the software and monitor his plant himself (the non-hosted version). This is mainly used for large properties where suitably trained employees are available to intervene, if necessary. But for all operators who do not have suitable staff, it is preferable to contract SAUTER to record and evaluate the data (hosted version). For as little as EUR 100 per month, for example, a building operator can have active building management maintained by SAUTER via hosting. At the same time, the operator always has web access to his plant data.

The national and regional SAUTER companies are responsible for advising and supporting customers on EMS issues, with support from the EMS specialists at SAUTER HeadOffice in Basle.

New components are often a requirement

It is also necessary to install the right components in order to record energy consumption correctly. In many cases, this is where a start has to be made to create the basis for improved energy management. For example, additional measuring points and new energy meters must often be installed so that it becomes feasible to use SAUTER EMS, and to enable precise and continuous measurement of the consumption figures for power, heat, cold and water.

Major potential for savings in most buildings

Progress in building management over recent years means that some degree of potential for savings can be found in virtually every building. Depending on the particular building, SAUTER EMS and the appropriate measures can save between 15% and 40% of the operating costs. This percentage is determined not only by the building's state of the technology but also by its shell.

User behaviour plays a major part too: efforts to cut energy consumption will achieve maximum effect only if they are supported by the building's users. Examples include preventing unnecessary power consumption in relation to room lighting, and restricting hot water production to times when it is really essential. If equipment is left switched on when no longer needed, a building that is basically efficient can soon become an 'energy guzzler'.

Progress in energy management is resulting in even stricter standards and regulations. One example of this is the energy certificate that is already specified as a requirement in various countries. On the other hand, subventions are often made available for buildings with especially low energy and CO_2 levels. This shows once again that effective energy management – as made possible by SAUTER EMS – is in the best interests of every building operator.

Thomas Buchmann

A world of adventure in harmony with the environment: the *AquaVexin* complex in France.

Environmental compatibility through low energy consumption was one of the main planning targets for the large swimming pool at Trie-Château.

This high-tech building complex catering to a catchment area of 50,000 residents is a superb example of what can be achieved by co-operation at the political, administrative and technical levels. The project, worth EUR 10.2 million, is financed by the Eure and Oise *départements* and the regions of Haute-Normandie and Picardie. With its EY3600 novaPro32 building automation system, SAUTER is playing a crucial part in achieving the project's goals.

Varied range of sports and recreation activities

Opened in spring 2009, this extensive swimming pool complex comprises four self-contained and complementary areas:

- The swimming area with sports, recreational and paddling pools, a water slide and a whirlpool
- The wellness area with a sauna, steam bath, cooling bath and massage showers
- The fitness area with 25 places for stamina and power training
- The training area with a powerplate for individual programmes.The complex also includes a spacious cafeteria

High requirements for energy management

Baudin Chateauneuf, the group of companies responsible for construction, has already built more than 200 sports and leisure pools for French local authorities. In the current economic climate, where competition is fierce, the group put its trust in SAUTER Régulation's know-how to meet the demanding requirements for this project.

The EY3600 novaPro32 building automation system deployed here is not only a management instrument but also an effective interface that the operator can use to control heat production from the different energy sources: gas, solar energy and electricity (heat pump). The system enables cost-effective management of power consumption by adjusting power usage to the supply contract with the power producer. This efficient control of energy consumption through the EMAX function ensures that the contractually-agreed consumption level is not exceeded. The heat pump's five compressors are successively relieved in order to achieve this.

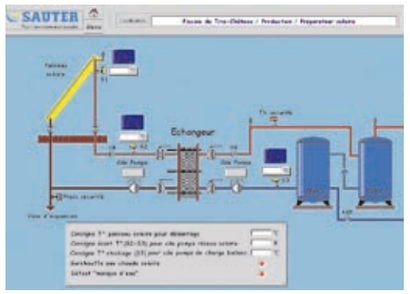
SAUTER know-how: still the first choice

By implementing this project, SAUTER Régulation yet again proves that it has the know-how to achieve the specified goal: guaranteed maximum comfort with optimum energy usage.

The extensive programme functions, combined with instruments that allow continuous tracking of plant power and performance data, make SAUTER the obvious choice of partner to accomplish assignments like these.

More projects along the lines of the Aqua-Vexin complex are already under way in other regions of France. The new SAUTER EY-modulo 5 system with its integrated web server will offer additional possibilities and benefits for these buildings.

Didier Domanchin
Jean-Jacques Debosque



The installation, with 300 data points and 12 automation stations to provide control and to treat air and water, comprises:

- The central heat generation plant with two heating boilers and heat recovery from the smoke gases
- A heating system using radiators
- Underfloor heating
- Three air-handling units
- A water/water heat pump unit
- A drilling unit
- Three pool heating plants with two heat exchangers each: one for the energy recovered from the heat pump, and one for the energy produced in the boiler house
- Three circulating systems
- A solar plant to produce hot water
- The electrical installation for the lighting and lift, together with the intrusion detection, public address and video monitoring centres

SAUTER novaTouch keeps things nice and cool.

When fresh produce has to stay fresh, reliable refrigeration is an absolute necessity – and it can also help to achieve massive savings.

To advance efficiency in the refrigeration sector, SAUTER has now developed two versions of its tried-and-tested compact controller: one is for ventilation plants, and the other is for cold-storage rooms and deep-freeze facilities. These developments combine all our experience from the successful SAUTER novaTouch product with our knowledge of the specific requirements for refrigeration circuits and their principles of operation.

As the German Federal Ministry for the Environment has said with regard to industrial refrigeration technology: "Exceptional savings effects can be achieved in this area. Energy-saving methods that barely paid off in the past now become profitable in just a few years. The use of state-of-the-art components together with digital control and regulation provide great potential for savings."

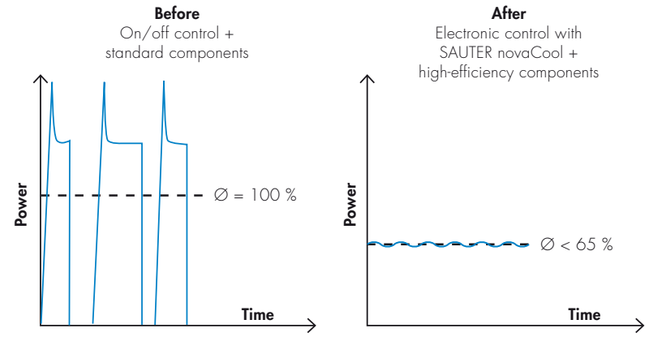
SAUTER novaCool and SAUTER novaFreeze compact controllers

The SAUTER novaCool controller has been developed for ventilation systems with a finned coil evaporator, an electronically-controlled expansion valve and a speed-controlled compressor with a condenser fan. On the other hand, the SAUTER novaFreeze version controls cold storage and deep-freeze facilities with genuine demand-led defrosting and optimised control for the defrosting heater.

SAUTER's controllers start saving time and money as soon as they go into operation. The refrigeration system is very simply commissioned by the plant manufacturer himself. There is no time-intensive parameterisation. No complicated programming – and no additional computers.

A touch-panel provides fully graphic operation, with intuitive guidance through the clear menu and no need for lengthy explanations. Only five minutes are needed to achieve sure mastery of this profitable technology. All the operating parameters to monitor the systems are always clearly available. And as you would expect, the SAUTER controllers can be integrated into a networked building automation system at any time.

Huge potential for savings can be tapped by changing existing refrigeration systems over to SAUTER novaCool. Only a few new components are required to ensure energy-efficient operation for an installed cooler: one electronic expansion valve, two frequency converters, five sensors and one SAUTER novaCool.



SAUTER novaFreeze compact controllers prevent the coil from icing up

Coil icing is one of the difficulties that arise in connection with control for cold storage and deep-freeze facilities. It is easiest to explain this problem by reference to a deep-freeze room.

In a butcher's shop, for instance, the freshly-made sausages have to be placed in the cold store as quickly as possible on account of the food cooling chain. Rising vapour is immediately precipitated onto the cooling coil, causing it to ice up. This leads to a substantial drop in cooling power. The cooling can operate only with optimal power again after defrosting has taken place. This makes it impossible to maintain the room setpoint of 0°C (for example), and the actual value will vary considerably above the setpoint.

With most existing controllers, defrosting is based on a fixed time programme. This means that the defrosting process starts even though there is no need for it at all, or else it takes place too late. These reasons prompted us to develop SAUTER novaFreeze, which counteracts icing at an early stage because defrosting is demand-led, and is assisted by an optimisation module. There's no doubt about it: this saves energy and money.

Gisela Kornmeier

EPA PHOTO / PAUL BUCIUTA

Remote heating and monitoring in the Carpathians: SAUTER web management in Romania.

The new SAUTER company is playing a major part in refurbishing the energy distribution system.

Thermal energy distribution is a sector that is undergoing radical change in Romania. The country's cities obtain most of their energy from combined heat and power stations that cause severe environmental pollution (coal is still the main primary energy source) or from a central district heating network. Outmoded plants are now being gradually refurbished or replaced.

Most of Romania's energy production and distribution infrastructures date back to the 1970s and 1980s; their efficiency levels are correspondingly low, and they totally fail to reach current European environmental standards.

EY3600 novaPro brings a variety of benefits

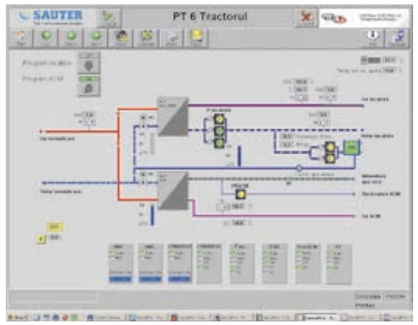
In 2006, the city of Brasov in the heart of the Carpathian region joined forces with the CET Brasov operating company to make a start on refurbishing and modernising its production equipment and distribution system. This project is benefiting power consumers and operators as well as the environment.

The investment budget included the purchase of large components such as heating boilers, pumps and converter plants, as well as automation, including data transmission, visualisation and data back-up on a central PC (dispatcher).

Thanks to its EY3600 family of products and the novaPro management system, SAUTER has been able to offer a comprehensive, high-performance solution that is both reliable and economical. An extensive building management system with 6900 data points has been installed.

From transmitting data to increasing efficiency

According to Mr Marian Anghelina of CET, the greatest advantage of SAUTER's solution is simple data transmission via GSM, which is ideal for the purpose.



Five or six times each day, data from 62 heating points and 31 thermal power stations are transmitted: specifically, they comprise temperature and pressure values together with the relevant status and alarm signals.

The next step will be to enable transmission of consumption figures so that determination of demand can be improved: this will reduce energy consumption and optimise efficiency.

SAUTER looks back on a long tradition in Romania

SAUTER and Romania can look back on a long shared history. Back in the 1950s, a number of state-financed prestige projects were implemented with planning and technological assistance from SAUTER. After the fall of Ceausescu and the communist regime at the end of 1989, SAUTER was represented by a sole distributor and several specialist partners.

In order to strengthen its market presence and to develop the major potential following Romania's accession to the EU at the start of 2007, the SAUTER Group decided to found a fully-owned subsidiary in 2008: SAUTER Romania (www.sauter-control.ro).

The SAUTER Group's excellent reputation and its dynamic approach with the new EY-modulo family of systems make SAUTER's goals in Romania clear: to offer efficient, customer-orientated solutions in all four divisions:

- SAUTER Systems
- SAUTER Components
- SAUTER Services
- SAUTER Facility Management

The company's staff in Bucharest will cooperate closely with specialist partners to advance the development of these four market segments, against the backdrop of almost a century's experience of building automation.

Jean-Luc Fritzinger

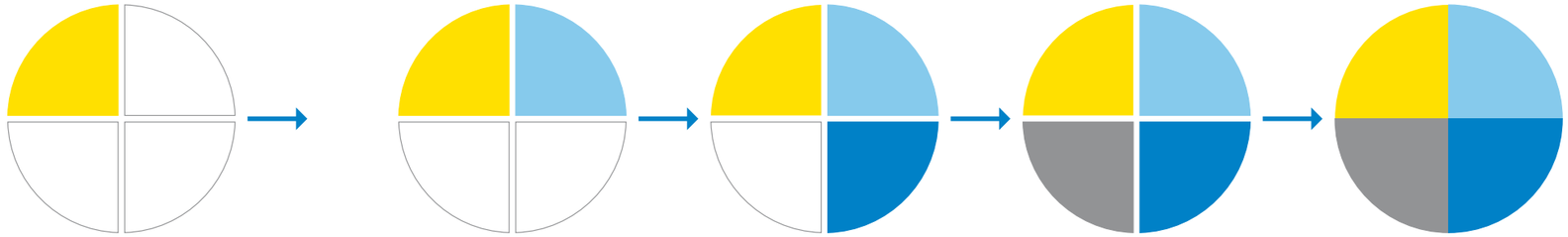
The staff of CET Brasov (left) and SAUTER Romania (right)

SAUTER as an experienced partner for OEM customers.

The use of renewable energies with a mutual exchange of knowledge.

OEM co-operation with SAUTER: the fastest route to the new solution.

A transformation is taking place – and its name is SAUTER OEM. SAUTER has long been a preferred supplier of components for the OEM market, but now a new business area in this segment will focus on developing complete customised solutions. Based on SAUTER's many years of expertise in the control and production sectors, new solutions and components are being devised – primarily in order to make efficient use of renewable energies. As well as giving our OEM customers the technological edge that they seek, these new developments will also shorten their 'time to market'.



Focusing competencies.

Product brief and path toward the solution.

Implementation as customer product.

Series production and updating.

Result: tailor-made, long lifetime, innovative, high quality.

Dr. Thomas Laux

Proactively in touch with markets and trends

National and regional SAUTER companies offer their OEM customers in-depth knowledge of the market and an instinctive awareness of present and future customer requirements. The requisite technical back-up comes from the OEM experts at our head office, who work with the OEM customers to devise new solutions on site, enabling them to play their part in shaping the future development of the market.

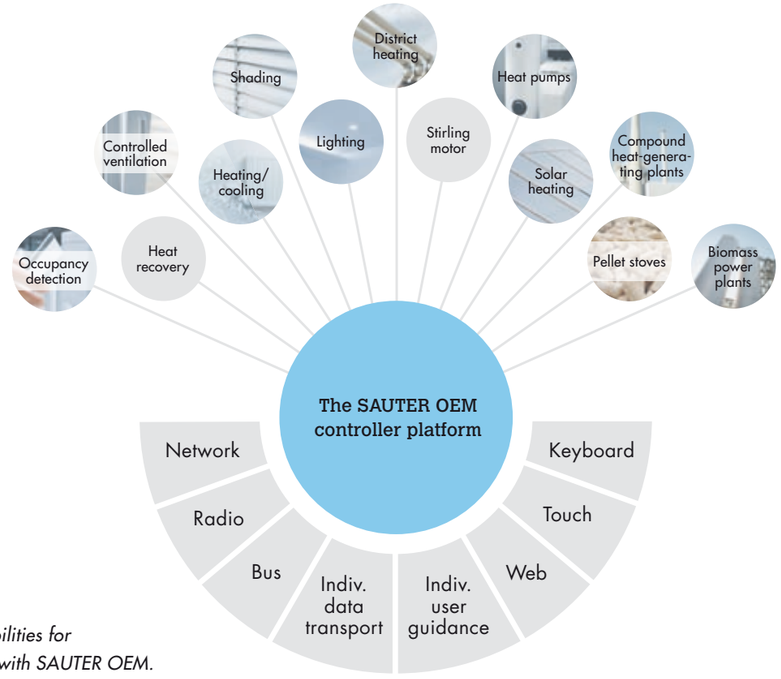
A variety of contacts at trade shows and other specialist events helps us to identify upcoming market and customer requirements at an early stage, so that we can incorporate this knowledge into the preliminary development of our OEM technology modules.

As a result, there is every chance that SAUTER will already have completed a considerable amount of the preliminary work to meet customers' new requirements, and this has a positive impact on the time-to-market factor.

Efficient use of resources and capacity

As well as gaining a technological edge, co-operation on development with SAUTER also enables customers to make economical use of their own resources and to expand their product portfolios in less time.

While we are working on a follow-up product for the near future, customers can make full use of their capacity in their core area of competence, so their available capacity is substantially increased.



All-round possibilities for utilising energy with SAUTER OEM.
The SAUTER OEM controller platform makes it possible to use all sources of energy to supply, control and interlink equipment systems of different types.

If our OEM technology modules are occasionally unable to meet customers' future requirements in the short term, SAUTER is always able to draw on its extensive network of technology partners.

In every respect, SAUTER supports its customers from the product idea all the way through to the market launch. And they can also count on us for field tests, commissioning and product updating.

Controller platform for versatile use of energy

The centrepiece of our support for our OEM partners is a flexible controller and technology module platform that is optimised in line with customers' specific requirements for energy efficiency, especially in the regenerative energy sector. To quote a familiar example: water-water and air-water heat pumps make use of the air and also draw energy from underground in order to heat or cool buildings. However, control processes in heat pumps – as well as the design of the pumps themselves – still offer considerable scope for improvement in terms of energy and cost efficiency.
In this field, we are already co-operating closely with manufacturers so that we can exploit the synergy effects and set the next milestone for the market on the path towards new heat pump systems with greater energy efficiency.

Looking at the overall energy flow

However, we do not focus solely on obtaining primary energy more efficiently; we also cover the entire area of efficient usage, as one would expect. Overall control and optimisation of the entire energy flow is, in fact, the only way to achieve the desired future success in terms of efficiency.

Demand-led cold and heat production, demand-optimised heat and cold distribution, and related ventilation control for living spaces with heat or cold recovery – these are some key features of the complete range of products and solutions that we are already implementing together with our OEM partners.

Modular OEM solutions for flexible applications and extensions

When developing solutions for our OEM customers, we always pay attention to the internal and/or external modular structure. In line with the motto "Start small and expand later", we therefore guarantee that our components and solutions can be extended or expanded as time goes on.

This generates a number of benefits: our products and solutions can be utilised on a more universal basis, expenditure on development costs for subsequent extensions is reduced, and – as a further advantage – the 'time to market' is even shorter.

Not only new construction projects, but also renovations are important markets for our current OEM customers. It follows that SAUTER OEM is also the right partner in these areas, when the aim is to support our customers by providing our expertise with regard to efficient energy usage and distribution. When a renovation involves a conversion to new regenerative energies, for example, SAUTER OEM can offer everything from a thermal valve actuator or a customised controller through to a complete wired or wireless OEM room management system.

The fine art of simplification

Thanks to our ability to handle the operation of complex systems in a simple way, SAUTER OEM is a highly valued partner for major projects and smaller applications alike.

Many plants that do not bear our name but definitely display the SAUTER hallmarks do not require any system specialists and can be easily commissioned by installers. One other aspect of SAUTER's acknowledged expertise is the excellent cost-to-benefit ratio that our solutions always offer.

Dr. Thomas Laux

SAUTER OEM solutions make buildings energy-efficient.
Conventional or regenerative, from the earth or the sun: the energy flow will always be efficient thanks to SAUTER's OEM solutions.

Water efficiently under control using valves and actuators from SAUTER.

Constantly-improved control performance and better handling.

The control of water flows in buildings has long been counted as one of SAUTER's core competencies. Our current range of valves (including ball valves), thermal and SUT actuators sets the global standard for control quality, efficiency, flexibility and ease of handling. Wherever water is used in buildings, SAUTER regulating units ensure sustained quality of control and distribution.

A clear-cut range for a host of applications

With just a few basic models that can be flexibly adapted to different requirements and combined in a variety of ways, we make it easy to choose the right combination of valves and actuators – and this also makes stock management much easier for installers.

Fitting and commissioning our regulating units is equally simple – there isn't even any need to use a tool. We offer ideal solutions for every flow rate, from smallest to largest: with minimum power requirements but maximum performance and efficiency. From simple underfloor heating controls to flow control for district heating water, the SAUTER range provides the right regulating units made from high-quality materials.

A ball valve with perfect technology and the ideal choice of materials

One of the special components in our product range is the ball valve, which is available in two- or three-way versions. It ensures maximum flow with an entirely equal-percentage characteristic, offering control precision that surpasses all previous standards. The body and the ball are made of dezincification-resistant brass. To prevent friction, the ball has a polished surface and is chromium-plated. As well as ensuring absolute tightness, these features also guarantee that the water is kept clean because no zinc can be washed out.

Efficiency in the smallest possible space: an actuator for underfloor heating and much more besides

The super-compact SAUTER AXT2 actuator is another example of our endeavours to minimise dimensions and power requirements, while maximising control precision. This thermal actuator is the ideal solution wherever space is limited. Thanks to its patented system of compensating for the closing dimension, it is suitable for every small valve with a closing range from 4.5 to 18.5 mm in the NC version, and from 8.5 to 22.5 mm in the NO version. Thanks to the 'Low-Force-Locking' technology (which is also patented), it is extremely simple to connect the actuator and the valve. The large position indicator is easily visible and can be felt by hand, which facilitates functional checks. Various cable lengths and types are simple to connect thanks to the plug-in connector. Functions such as continuous control and auxiliary contacts can be added at any time. The high IP54 degree of protection guarantees electrical safety and allows the unit to be fitted upside down.

Integrated control intelligence: SAUTER Universal Technology (SUT)

Our new generation of actuators includes everything to guarantee maximum control quality, such as variable actuation, automatic adaptation to control operation, self-diagnosis and a data memory. What is more, the actuators switch off automatically once the limit stop is reached – a demand-led functionality that minimises energy consumption. If a ball valve is combined with an SUT actuator and remains unused for three days, the actuator automatically moves the ball to prevent it from jamming. Every aspect of these actuators is designed to ensure trouble-free operation throughout a long service life.

Fabien Peter

A spectacular building with an intelligent interior: the Slovakian offices of *Strabag.*

Geothermal energy and concrete-core temperature control for highly efficient energy usage.

Strabag AG of Austria, one of the world's largest construction corporations, recently completed the construction of its branch in Bratislava. Designed with the collaboration of the Vienna Museum of Modern Art, the new office building truly creates the impression of a unique work of art – and not just from the outside. The art of modern building management is also displayed to best advantage in the building's energy supply, distribution and usage.

Standing above two basement floors containing garages, the building has six floors in its east wing and three in the west wing. The constructed area houses about 350 offices, a cafeteria, kitchen, crèche, post office and doctors' surgery as well as building technology and archiving rooms. Technical equipment such as ventilation systems and the recooling plant are accommodated on the roof.

Geothermal heat, geocooling and an active concrete core

The building is heated and cooled by drawing energy from within the earth and feeding it to the heating pumps via 90 geothermal probes. These probes are 90 to 110 metres long, and obtain underwater heat from the area close to the Danube. Three heat pumps, each rated at 550 kW, feed heat and cold to the consumer equipment via heat exchangers (primary circuit with propylene/glycol 30%, secondary circuit with water).

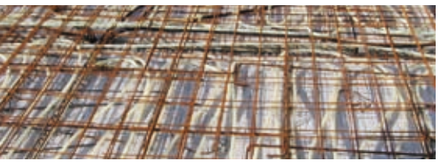
Comfortable heating is guaranteed by an active concrete core. This is divided into modules of 15 m^2 each, to which the water is fed from a distributor via a change-over valve system.

Each office room also has underfloor heating which can be adjusted in a range of ±3°C and can also be used for cooling in summer. Chilled beams are installed for rooms with heat dissipation, such as conference rooms.

In the basement is the server room, which enjoys stable cooling in both summer and winter. Provision is made for a compact cooling plant in case of emergencies. Fan coils maintain the room temperature.

Eight ventilation systems are installed to handle air change in the building and for the air-conditioning. The management system also includes 90 fire protection/smoke dampers and an emergency ventilation system in the event of fire, plus a CO detection system in the garages.

Ivan Hollan



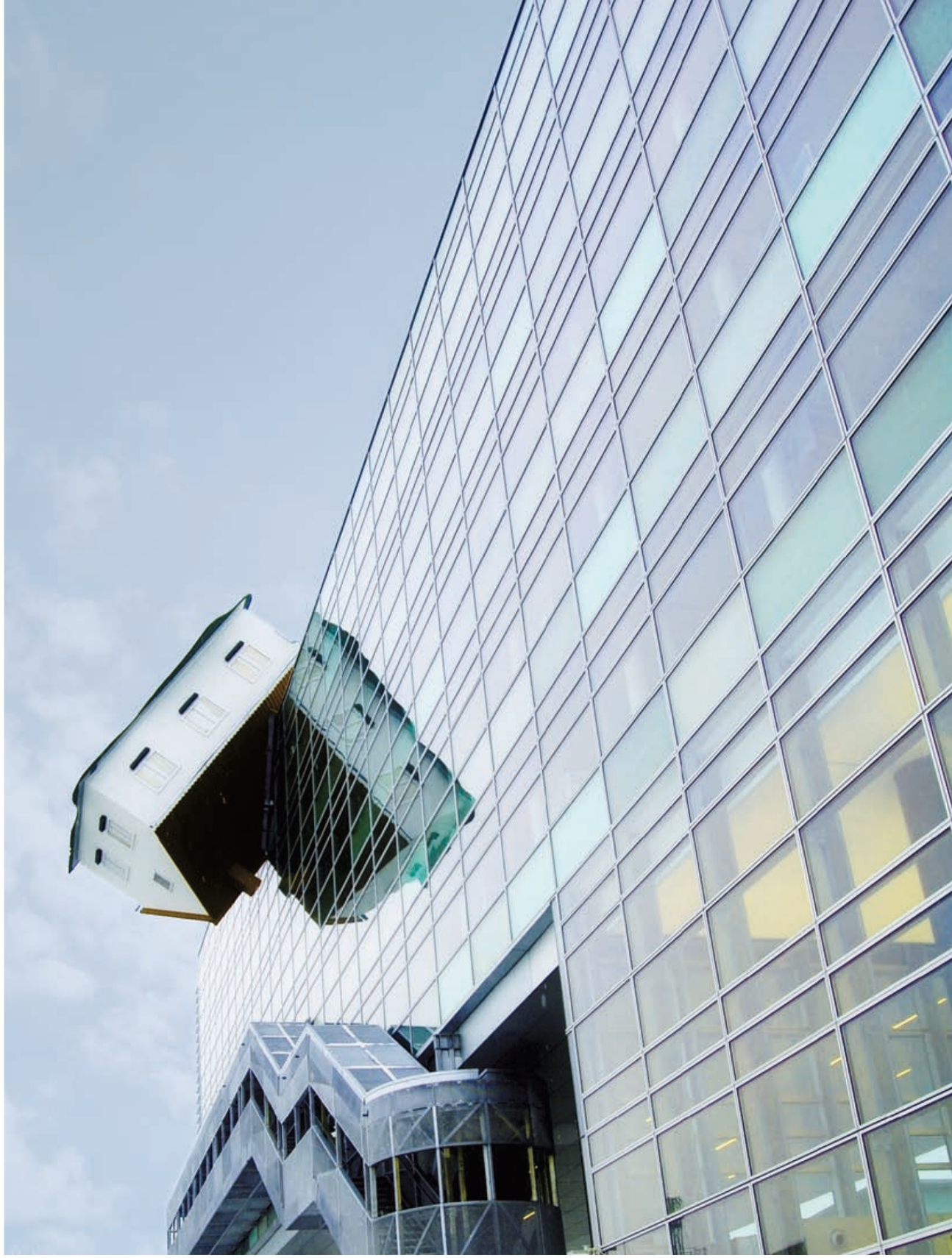
Pipes in the concrete core

The EY3600 system in the Strabag building in Bratislava:

The EY3600 management system comprises:
- 32 EYL and EYU automation stations
- 90 novaFlex universal controllers
- 20 ecos intelligent unitary controllers
- Heat pumps and power meters connected via MODBUS, and heat and cooling meters connected via M-Bus.

The management system controls and regulates:
- Ventilation systems
- Heat and cold production
- Heat and cold distribution
- Water treatment
- Lighting
- CO detection in garages
- Control of various technical installations and weather station

Visualisation is handled by SAUTER novaPro with remote monitoring via the internet, and alerts are sent by SMS and e-mail. Complete mobile monitoring via notebook is also provided.



SAUTER EY-modulo is conquering the market for sophisticated building management systems.

Investors and operators recognise that this new system has great potential and can reliably cope with future challenges.

In spring 2008, our SAUTER EY-modulo system ushered in a new era of building automation that has once again extended the horizon of possibilities. Designed to meet the most demanding requirements, SAUTER EY-modulo (as its name suggests) is a modular and extensible system that offers maximum compatibility, based entirely on the open BACnet/IP communication standard. It was for this reason in particular that the system was selected by Rabobank of the Netherlands for its new building in Utrecht, and also for a new building belonging to Austrian Federal Railways.

Wietse Hut, Commercial Manager, SAUTER Nederland

The new Rabobank: outstanding in every sense

With a height of 105 metres, the new Rabobank is the second-tallest building in Utrecht after the city's cathedral. The complex of buildings, which accommodates 6500 employees, is also remarkable for its openness towards the outside world and its flexible interior structure – 'Rabobank unplugged'. Fixed workstations are a thing of the past: employees at all levels work on their laptops in the most suitable location at any given time. This is why the new building is also known as the 'Rabobank Campus'. This sort of working environment has already proven itself in the Netherlands at the Interpolis insurance group.

Rabobank is also setting standards when it comes to the sustainability of this building, whose energy coefficient is 35% less than the value specified by the applicable regulations. This involves minimising the CO_2 emissions, an aspect that is especially important in the Netherlands in view of climate change and the related rise in the sea level. After all, 25% of the country's territory is below sea level. Rabobank considers it important for all its new buildings to use the minimum of construction materials, energy and water; recycled materials and renewable energies are used wherever possible.

Thanks to its cutting-edge automation system, SAUTER is making a substantial contribution towards the efficient utilisation of all types of energy in the new complex of buildings in Utrecht.

Complete data exchange via BACnet/IP thanks to SAUTER EY-modulo

Based entirely on the open BACnet/IP communication standard, the SAUTER EY-modulo system has proven to be ideal for Rabobank. For instance, the air-conditioning system, the emergency power units, the internal transport systems and more than 100 frequency converters all communicate with each other via BACnet/IP and SAUTER novaPro Open (B-OWS). This approach is fully in keeping with the company's concept of flexibility, allowing gradual extension on an adaptable basis. "Rabobank's choice of BACnet/IP was a very deliberate decision," says Mr De Vries, who is responsible for building technology. "BACnet used to be a communication medium for data exchange, but is nowadays increasingly turning into a communication platform for installation technology as a whole. We are convinced that BACnet/IP with SAUTER EY-modulo provides a platform that will meet the challenges of the future – and this is precisely in line with our corporate objectives."

SAUTER's new system supports Rabobank's efforts to ensure sustainability. The company selects all its supply partners on the basis of this principle. "Sustainability should be accepted, and what is accepted should also be sustainable", according to Mr Bert Heemskerk, Chairman of the Rabobank Group.

Wietse Hut

SAUTER EY-modulo at Rabobank:

- 20 primary automation stations
- 90 secondary automation stations
- 2500 room controllers
- 4000 window blinds
- 6000 strip lights
- 50,000 data points

SAUTER RACE in the Indian centres of two of the world's leading IT companies.

When it comes to building management, Microsoft and Hewlett Packard are backing this Indo-Swiss company on their campuses.

With its vast reservoir of outstanding IT specialists, India is well-known today as a preferred location for this sector. Large centres are operated by Microsoft in Hyderabad and HP in Bangalore, where they play decisive parts in the global activities of these two corporations. Thanks to its experience and expertise, SAUTER RACE was contracted by both IT firms to implement the building management system for their campus facilities.

HP Campus, Bangalore

Microsoft Campus, Hyderabad

Complex integrations for Microsoft

The Microsoft campus in Hyderabad has some 1200 employees and is spread over an area of 171,000 square metres. It includes the India Development Centre (IDC), the Global Delivery Centre India (GDCI) and the sales and marketing organisation. The IDC is regarded as the strategic centre for the development of Microsoft products that give the firm its market edge. The GDCI develops applications to support Microsoft's global activities as well as managing the company's entire IT infrastructure.

In the first phase of the project, the SAUTER RACE team installed the control system for VAV (variable air volume) systems, and integrated it into a third-party automation system. Based on the expertise that they brought to this project, the team was awarded a follow-on contract to implement the entire building management system. This included controls for cooling and fresh-air systems, air-handling units in the ceilings and floors, fan-coils, fans, air extractors and water management – all with one SAUTER EY3600 novaPro Open system. Non-Sauter systems also had to be integrated, such as Stulz fresh-air systems on Modbus, Danfoss a.c. generators on Modbus, and Carrier cooling plants on BACnet. 1400 SAUTER controllers and two management centres for 65,000 data points each monitor and control the HVAC systems for the entire campus. The third-party VAV system with SAUTER controllers from the first phase was integrated via a third-party management system using SAUTER BACnet communication cards (EYK 300 F001).

The SAUTER RACE TEAM: Srinivasa Ramanujam, Badari Rangan, Rajesh Kumar, Anand and Nagendra (left to right).

All the systems on the campus are operated and maintained by a SAUTER RACE team.

Complete building management for Hewlett Packard

On a constructed area of some 41,800 square metres, the HP campus in Bangalore houses the Systems Technology & Software Division (STSD), the Asia Pacific Regional Centre for Enterprise Storage Systems and the Software Global Business Unit. In addition, there are data centres where servers valued at over one billion U.S. dollars are tested.

SAUTER's building management system comprises two management centres for 65,000 and 2,000 data points respectively, about 450 controllers for VAVs, air-handling units, ceiling air-conditioning units, fan-coils, cassette air-conditioning units, fans and wastewater treatment systems.

Various third-party systems – such as Trane cooling systems, Emerson back-up systems, SDMO generators and Emerson a.c. generators – were integrated via Modbus or BACnet. The building management system also controls a diesel generator with a standby controller as a back-up if the main controller fails.

The air-conditioning equipment for the laboratories is integrated via Modbus and the data are forwarded to the HP Dynamic smart cool system via the OPC protocol. This system controls the Emerson fresh-air plants via the building management system, which serves as a key interface here.

All the systems on the HP campus are also operated and maintained by a SAUTER RACE team.

As a specialist in energy efficiency, SAUTER is benefiting from its own expertise.

Maximum use will be made of regenerative energy at the SAUTER Group's headquarters in future.

The construction of SAUTER's new multifunctional operating building in Basle offers us the opportunity to renew our own energy supply system. Solar collectors have been set up on two flat roofs of the existing complex of buildings, and the new building is being constructed in compliance with Switzerland's *Minergie* standard. By taking these steps, SAUTER aims to highlight the present and future possibilities for energy-saving in large buildings – and to benefit from them itself.

Solar power plant at our own headquarters

SAUTER has opted for solar collectors for the generation of energy at its group headquarters in Basle. In co-operation with *Solarspar* of Liestal, SAUTER has installed on the flat roofs of two of its buildings a solar power system rated at 28.08 kW_p and providing 25,000 kWh; this is equivalent to the electrical energy consumed each year by more than five detached houses, and would be sufficient for the energy consumption of twelve detached houses built to the *Minergie* standard. A total of 156 polycrystalline solar cells, with a total length of about 33 metres, have been fitted on the roofs of the offices and the factory buildings.

Even greater energy efficiency

It's also very obvious that a construction project is in progress on the same site. During the current year, a new multifunctional building for production, logistics and administration will be completed here. Entirely in keeping with our corporate strategy, this building has been designed to meet Switzerland's *Minergie* standard. It goes without saying that the latest SAUTER solution applications for building management are being deployed in our own new 'home'. Solar panels will also be fitted to the flat roof of the new building.

Using groundwater for cooling and heating

In the new SAUTER building, the groundwater provided by a natural inflow is used for both cooling and heating. The flow of groundwater is tapped via two bore holes so that it can be used in both summer and winter via a heat pump installation. The heat recovery facility required for this purpose also has to be installed for ventilation and air-conditioning plants even if the *Minergie* standard is not applied.

This February, the authorities extended the drilling permit for the planned utilisation of the groundwater, ensuring that SAUTER can carry out meticulous planning and bring the project to an optimal conclusion.

Careful use of resources

At SAUTER, we have already been setting an example of energy-efficient and ecological behaviour in our own company for a number of years. At the Basle premises, which also accommodate our only production facility, CO_2 emissions have been reduced by 39% and water consumption has been cut by 30% since 2003.

Torsten Seidel

Energy management under the burning sun: Al Jahili Fort in Abu Dhabi.

SAUTER provides efficient air-conditioning in a fortress that has been converted into a museum.

Al Jahili Fort in the city of Al Ain was built in the 1890s at the behest of Shaikh Zayed Bin Khalifa (the ruler of Abu Dhabi from 1855-1909) and later became the residence of the ruling Al Nahyan family. It is one of the largest fortresses still preserved on the territory of the United Arab Emirates. In the last two years, the building has been restored and converted into a cultural centre and museum. This involved the use of some air-conditioning techniques that are unusual in the Middle East.

The refurbishment of historic buildings always poses a special challenge for both the architects and the building technology experts. And when a building is over a hundred years old and consists of clay walls and a clay roof stabilised by palm tree trunks, the assignment is even more extraordinary.

Efficient cooling with wall pipework

The refurbishment of Al Jahili Fort involved rebuilding the core of the building and integrating the building technology equipment so that it would be invisible to visitors. An underground machine room was constructed behind the building from which cooling air is fed to the fort through pipes which are also laid under the ground. The main cooling effect is obtained from a wall cooling system, a novel feature in the Middle East, for which over twelve kilometres of pipes were installed in the walls. A pleasant temperature of 22°C is maintained continuously in the fort's rooms.

Special tasks for building management

High-precision control is needed in order to maintain a constant climate in a building of this sort, under the humid and hot conditions that normally prevail. SAUTER was the ideal partner to ensure that the walls remain cool (yet no condensate forms) and that the relative air humidity remains constant throughout.

Monitoring of the underground machine room outside of the fort is handled from the information panel in the fort itself, with visualisation of all air-conditioning equipment and values, e.g. for the fresh-air system, cold accumulator, hot water system and water distribution. These measures ensure efficient use of the supplied water.

Together with the novaPro open management system, the EY3600 automation stations in the machine room and in the fort's attic enable complete integration and visualisation.

Sanjiv Sachdeva

Sanjiv Sachdeva, Managing Director, SAUTER Middle East

SAUTER strengthens its position in the Middle East

SAUTER has established its position as a building management partner for numerous future projects in this growth market by opening a branch in the United Arab Emirates and by taking part in the BIG 5 Exhibition at Dubai in autumn 2008. SAUTER Middle East in Sharjah, headed by Sanjiv Sachdeva, is excellently positioned thanks to its expertise in energy efficiency and a product portfolio that is tailored to the local market.

How our expertise in solutions improves energy efficiency in ten steps:

ECO 10

1. We centralise and visualise the information.
2. We compare with internal and external benchmarks.
3. We compile a tailor-made energy concept.
4. We demonstrate the possibilities of alternative energy sources.
5. We minimise emissions substantially.
6. We use groundbreaking, interconnected products and solutions.
7. We network all special systems.
8. We harmonise the technologies of the building shell, building automation and plant engineering.
9. We help your users to make their behaviour more energy-conscious.
10. We lower your operating costs.

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