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CUSTOMER MAGAZINE OF SCHRACK SECONET

01
SEPTEMBER 2023

fire&care

Editorial

Dear readers, in this issue of our customer magazine, we're pleased to present several extraordinary projects: For example, we haven't just provided fire protection for the tallest building in the European Union, which has just been opened in Warsaw, but also for the world's largest solar park, which is currently being built on the outskirts of Dubai. Read more about these two extraordinary building projects on pages 4 and 8.

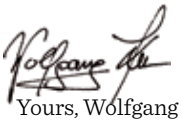
The project report on the solar power plant in the United Arab Emirates also forms the introduction to our magazine focus, which is on the topic of sustainability. The green transformation is currently one of our key challenges and demands changes on many levels. A crucial issue here is the energy transition. Electromobility and photovoltaics are two important building blocks for sustainable mobility and energy generation, but they also come with special fire risks. In the article starting on page 12, we take a look at how these dangers can be minimised and which solutions are suitable for technical fire protection.

Sustainable solutions for fire protection and communication systems

Here at the Swiss Securitas Group, we're publishing a sustainability report for the first time in 2023. In future, this will provide all our stakeholders with clear and standardised information on topics such as emissions, working conditions, product safety, data protection, etc. At Schrack Seconet, coming up with sustainable solutions has been an important concern for us from the very beginning: Our fire alarm systems as well as our communication systems are designed for long-term use. They conserve resources, guarantee cost-efficient operation and can be gradually modernised to benefit from the latest developments in technology. The article opposite on page 3 provides information on how this can be implemented in practice with our communication systems.

Finally, at the end of the magazine, we'll take a look at the topic of severe weather. Austria is one of the pioneers for lightning research in Europe. Wolfgang Schulz, head of ALDIS, tells us more about progress in this area in an interview.

I hope you find a lot of the information in this issue interesting, and I hope you enjoy the read.



Yours, Wolfgang Kern

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PHOTO: RUDOLFINUM.CZ

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Health Care: Efficient and Safe Modernisation

PHOTO: SPOTMATIKPHOTO / ADOBE STOCK

Older call systems in hospitals and nursing homes often no longer meet current requirements. In some cases, it can even be dangerous if parts of an older system fail or if help can't be requested because there's no voice communication option. In general, the limited integration possibilities with other systems lead to inefficient workflows. Another factor is the rise in the number of people needing care: EU surveys predict that life expectancy will continue to increase – in the year 2100, the average person will be expected to live until the age of 90. Updating the communication system ensures that everyday life in healthcare facilities can also be successfully managed in the future.

Optimise Workflows, Seize Opportunities

In this way, modern solutions enable a standards-compliant communication system and offer better service to patients and residents alike. Thanks to the connection of assistive systems such as the mobile app Visocall Mobile, the perfect complement to Visocall IP, and the Real Time Localisation System (RTLS) Securwatch SmartLiberty, staff can also be supported in performing tasks optimally. Nonetheless, modernising a system with ongoing operation poses special challenges.

A gradual modernisation with communication systems from Schrack Seconet enables budget-friendly access to state-of-the-art solutions for hospitals and nursing homes.

Budget-friendly Renovation at Your Own Pace

A step-by-step renovation is a beneficial option here: The conversion is carried out successively as part of a concept precisely tailored to the specific requirements and individual processes of a facility. This gives every hospital and nursing home the opportunity to benefit from the modern Visocall IP communication system. IP technology can be used to take advantage of benefits such as intelligent cabling, increased availability and reduction of maintenance or operating costs.

Because one thing is certain: If you want to significantly improve patient care and satisfaction in the future, utilise technological advances, make work processes more efficient and improve staff satisfaction, you need to modernise your communication system! ✱

Fire Safety at the Highest Level

Varso Tower in the Polish capital of Warsaw is now the tallest building in the EU. As part of the Varso Place office and service complex, the tower sets new standards with its record-breaking height of 310 m, but also in terms of fire safety: in cooperation with the company Uruchomienia.eu, Schrack Seconet Poland has made a significant contribution to many people's safety here.

Fitted out with fire alarm systems

The skyscraper has four underground and 53 above-ground floors as well as a viewing terrace at a height of 230 metres. Uruchomienia.eu is one of the companies responsible for the design, installation and maintenance of the technical facilities for the entire Varso Place complex. This also includes the safety and functionality of the buildings. The tower's fire scenario alone is 600 pages strong - maintaining the highest safety standards for a project this complex poses an unusual challenge.

Uruchomienia.eu and Schrack Seconet Poland have already been working together for nine years implementing fire alarm systems for a wide variety of projects throughout Poland. „We work with the best in our field and it is important to us that the end product is of the highest quality," emphasises Mikołaj Leopew, Financial Director of Uruchomienia.eu. For Varso Tower, Schrack Seconet was responsible for all the preventive fire safety systems and developed a concept based on state-of-the-art products. "These systems are of the highest quality," says Uruchomienia.eu CEO, Kamil Legard. "The systems are very well designed and boast great flexibility, unique scalability and programmability that is unmatched by other manufacturers."

"It's important to us to support every customer with the highest level of responsibility, reliability, efficiency and service."

Michał Sidor
Head of Schrack Seconet Poland

"We work with the best in our field and it is important to us that the end product is of the highest quality."

Mikołaj Leopew
Financial Director of Uruchomienia.eu

New dimensions

33 fire alarm control panels with a total of 25,000 automatic fire detectors were installed throughout the entire complex. In inaccessible areas, such as a 200 mhigh lift shaft, 350 aspirating smoke detectors of type ASD 535 were installed additionally, making maintenance in these areas a lot easier. Both systems are connected to each other by an Integral WAN (Wide Area Network). A management system appropriate for these requirements provides the security forces with a graphical overview in order to be able to react quickly in the event of a fire.

At 310 m, Varso Tower is currently the tallest building in the European Union.

The Varso Place office and service complex sets new standards – both in terms of height and fire safety.

25,000 fire detectors, 33 fire alarm control panels and around 350 ASD systems from Schrack Seconet were installed as part of the mega project.

PHOTO: HB REAVIS

Highest level of safety

The system generates its own outputs depending on the information it receives: it recognises when fire prevention doors need to be closed, lifts need to be lowered or the voice alarm needs to be activated in case of an emergency. These automatic processes are not only more efficient, but also offer an important additional safety factor. Michał Sidor, leading Project Manager and now head of Schrack Seconet Poland is satisfied with the result: "It's important to us to support every customer with the highest level of responsibility, reliability, efficiency and service." ✱

"The systems are very well designed and boast great flexibility, unique scalability and programmability that is unmatched by other manufacturers."

Kamil Legard
CEO of Uruchomienia.eu

The Clinic of the Future

As part of Vienna's largest investment programme to date, the seven city hospitals will be completely modernised by the year 2040. The growing city wants to be prepared for technological and demographic developments. The "Vienna as a Metropolis of Health" programme also brings major changes to the Klinik Favoriten, which was founded at the end of the 19th century as the Kaiser Franz Josef hospital and is now being modernised in several steps.

Completion of several interim steps and a new central building from 2026

The largest project here is a new central main building, which will be constructed from 2026 and replace five existing buildings. As a result, Klinik Favoriten is expanding its space by a quarter and resolving the lack of space on some wards. However, modernisation has been underway for some time: For example, a new medical centre for mothers and children and surgical procedures with six floors was opened in 2016, into which the former Preyer'sche Children's Hospital also moved. The medical and nursing staff as well as the patients now have a modern environment at their disposal. The glass building only has single and double rooms; if necessary, parents can stay overnight with their sick child. All patient rooms are equipped with the current Visocall IP communication system.

The next step in the modernisation was the psychiatry pavilion, which was recently extended. The expansion also allows occupancy here to be reduced to single and double rooms. In this way, the needs of patients can be better addressed, especially in acute psychiatry. All construction work was carried out when the hospital was running at full operation. This called for special care in planning and implementation.

Real Time Localisation System on the Psychiatric Ward

The new psychiatric ward now uses the Securwatch SmartLiberty disorientation system. Its modular design allows it to be adapted to the individual needs of each facility. As a real time localisation system, it supports the digitalisation of hospitals and nursing homes. Staff have more time for care, and at the same time patients can move freely and safely around the clinic without getting lost or in danger. They are provided with a wristband for this. The badge automatically triggers an alarm when a movement radius is exceeded, and the system detects if a wristband has been taken off.

As part of the "Vienna as a Metropolis of Health" project, the city hospitals will be renovated to the latest standards by 2040.

The Klinik Favoriten also makes use of the assistance call function: If a patient is aggressive or if additional help is needed, the nursing staff can activate this function discreetly. The system forwards a call to preassigned personnel with the exact location. The Securwatch SmartLiberty is now being actively used. During day-to-day operations, system issues mainly arise when a wristband is torn off or the battery of a badge needs to be replaced, reports Roman Dittrich. He is employed at the Klinik Favoriten as a Communications Technology Officer and tells us: "I've been working here for 14 years and I've come to appreciate working with Schrack Seconet as a business partner. The staff are very competent and you get reliable help no matter what the issue is."

Modernisation in Several Stages

The modernised psychiatric pavilion is just an interim step, though; the next building project is already being lined up: A new building to house the psychiatric wards will be constructed by 2028. After that, a separate building will be constructed for the forensic department by 2031. ✱

PHOTO: MARTIN MEIEREGGER / KLINIK FAVORITEN

Modern call system and real time localisation system at the Klinik Favoriten: For the benefit of both patients and staff.

Summer, sun, and trainings

Introducing our team of the Training Center Vienna: Karl Grabherr, Sabrina Thor, Alexander Strondl, Robert Sack (f.l.t.r.)

As we are of the summer season, many of us look forward to a well-deserved break and a chance to recharge before business-as-usual starts in September. But did you know that now, during the summer months, is the perfect time to invest in training and professional development? Or, to put it differently: Time should always be made for training, even during the busiest seasons.

Self-learning courses as ideal solution

Generally speaking, continuous education is a crucial part of everybody's professional life. Especially when dealing with comprehensive systems or highly technical products, a training can provide you with a broad understanding of the products, including their features, functionalities, and unique selling points. With an enhanced understanding of our fire alarm and health care systems, you can stay up to date about the most recent advancements in both sectors. This deepened knowledge equips you to position yourself as an expert in your field and provide valuable insights and advice to your stakeholder.

Despite the known benefits of training, potential barriers such as time constraints, the geographic distance, or similar issues often hinder individuals from actively pursuing it. At Schrack Seconet, we are aware of these obstacles – therefore, most of our training sessions are available as 24/7-accessable self-learning courses!

"So, what are you waiting for? Select from a variety of training sessions, invest in your professional growth, and seize the opportunity to excel in your field. We look forward to welcoming you to one of our training sessions!"

Robert Sack
Training Center Vienna

In this way, participants can allocate their training time flexibly and independently, learning at their own pace. Another advantage is that our training sessions are structured into intelligent sections, making it possible to take breaks at any time and go through the modules bit by bit – perfect for reviewing individual chapters intermittently. Further, our supplementary course materials provide our trainees with additional documents for reference and all the information necessary to achieve the learning objective of the course.

Ask our experts

However, what steps can be taken when questions about our fire alarm and communication systems arise that were not covered in the training? In such instances, we highly recommend our product-specific circles. A forum and monthly live sessions via video conference ensure that questions can be addressed and answered at any time by our experts, despite the physical distance.

Discover our new Training Program

To enhance your experience with our numerous training options, we have created a comprehensive Training Program for you. Including a guide on how to register to our platform, an overview of all courses for our business partners as well as the General Training Conditions, you have everything in one place place. ✱

PHOTO: KARL GRABHERR

SUSTAINABILITY

Green Energy from the Desert

FOTOS: IGNATIEV; CHUYU / ISTOCK

The world's largest solar park is currently being built just outside the city of Dubai. The first sections of the Mohammed bin Rashid Al Maktoum (MBR) solar park have already gone into operation, and phase IV with 950 MW will be connected to the grid by the end of 2023. Schrack Seconet has implemented an innovative fire protection concept for this gigantic project.

The United Arab Emirates is pursuing ambitious climate targets, aiming for net zero emissions by 2050. The country has budgeted a total of $ 163 billion to achieve this goal and is already a clear leader in climate protection on the Arabian Peninsula – 77 percent of installed renewable energy capacity is in the UAE alone.

Largest solar power plant in the world

A key component of the decarbonisation strategy is the MBR solar park, commissioned by the Dubai Electricity and Water Authority (DEWA). When completed, it is expected to have a total capacity of 5,000 MW by 2030, which would make it the world's largest solar park. The impressive project will also be open to visitors in the future – a visitor centre is already under construction.

The MBR solar park phase IV is based on a hybrid concept that combines photovoltaic modules with a solar thermal power plant (CSP – Concentrated Solar Power). Here, parabolic mirrors concentrate the sun's heat onto a 260-meter-high central solar tower. Based on these two components, the current section can generate 700 MW via CSP and 250 MW via photovoltaics.

Central monitoring of unmanned control rooms

For preventive fire protection, a special concept was implemented due to the huge dimensions of the MBR solar park phase IV project. Integral IP panels are installed in 55 transformer units and they are sending signals to the main fire alarm panel at the control room in the administration and control building. An important argument in favour of Schrack Seconet's systems was the extraordinary networking capabilities. The unoccupied 55 remote sites are combined via 4 Integral LANs and two Integral WANs.

Optimal system with transmission via fiber optic cable

A particular challenge in the project was the large size of the site, covering an area of 44 km2. Schrack Seconet finally developed a concept with the highest reliability, in which the connection between the individual elements is made via fibre optic cables. Unlike copper cables, the light here cannot be affected by electromagnetic waves. Integral IP is the optimal solution for such a special configuration:

"The unique solution of Schrack Seconet with the special software and control panel capabilities led the customer to choose our system. It offers more features and is more reliable and cost-effective."

Jürgen Tichy
Area Sales Manager
Schrack Seconet

"We have had the honour of completing all DEWA power plant projects for the past 20 years. To continue this tradition at Zener, we were delighted to be part of MBR solar park phase IV which is on the cutting edge of innovation in the green energy space. It was a rewarding experience to co-operate with the Schrack Seconet team on this prestigious project and we look forward to many more successful years of collaboration."

Michael Cronin
Director Zener Fire & Security

[Zener Fire & Security is a Dubai owned turnkey firefighting contractor, operating throughout the Middle East for the past 50 years.]

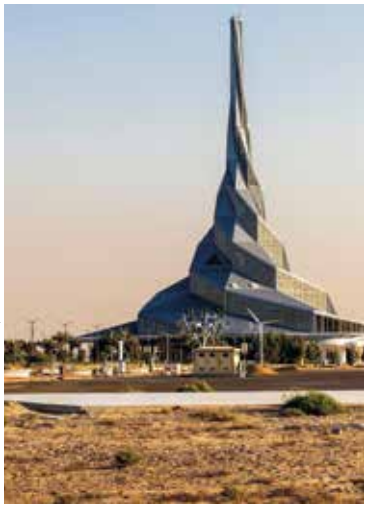


PHOTO: VIKTOR PAZEMIN / ALAMY STOCK FOTO

with Integral IP, converters can be easily integrated directly in the control panels to convert the signal. "The unique solution of Schrack Seconet with the special software and control panel capabilities led the customer to choose our system. It offers more features and is more reliable and cost-effective", clarifies Jürgen Tichy, Area Sales Manager at Schrack Seconet. ✱

From climate-neutral to Net Zero

There are various concepts relating to climate-damaging greenhouse gases:

- **Climate neutrality** is achieved when greenhouse gases produced are fully compensated by offset projects.
- In the case of **climate positivity,** more CO_2 emissions are offset than are caused.
- In the case of **net zero,** the amount of greenhouse gas emissions emitted is actually reduced to zero, meaning no offsets are required.
- Recognised standards for determining the CO_2 balance are Greenhouse Gas Protocol and ISO 140641.

Revitalising with exceptional quality

"Forte Partners' strategy involves integrating all elements of sustainability and energy efficiency from the designed concept phase and implementing them during construction, ensuring an environmentally friendly office space that creates a healthy and safe working environment for its users. In terms of fire safety, we totally rely on Schrack Seconet as our strategic partner."

Stephen Burke
Construction Director
Forte Partners

Projects developed by Forte Partners have received national and international recognition for their design and quality of architecture. Sustainability is a key criterion for Forte Partners, as evidenced by their projects being certified according to leading sustainability and environmental standards.

Outstanding projects in regard to modernity and revitalisation

Forte Partners have built a distinguished name in particular with projects that reshape, redesign, and revitalise key zones of Bucharest. One such exceptional project is U•Center, developed in the Tineretului area of Bucharest. U•Center is ideally situated on the primary axis of the city, right in its heart, and nearby two of the most beautiful parks in Bucharest. It combines all the different needs of modern office space incorporating the latest technologies for smarter, healthier, and more efficient systems.

U•Center was constructed in two stages with an investment of 200 million Euros. The first phase of the project obtained WELL Core at Platinum level with a score of 91, the highest recorded in Romania for this type of certification at the time of its achievement; LEED Platinum certification with a score of 85, one of the highest in Romania for LEED v4, and WELL Health&Safety certification in operation. The buildings use intelligent ventilation and LED lighting systems. Furthermore, parking spaces for electric vehicles are also provided.

Concerning the fire protection of this project, Forte Partners chose to collaborate with Schrack Seconet. In fact, Schrack Seconet has been consistently responsible for fire protection since Forte Partners' first project in 2014, after careful analysis in terms of early fire detection, fail safety, and investment security. "Forte Partners' strategy involves integrating all elements of sustainability and energy efficiency from the designed concept phase and implementing them during construction, ensuring an environmentally friendly office space that creates a healthy and safe working environment for its users. In terms of fire safety, we totally rely on Schrack Seconet as our strategic partner", states Stephen Burke, Construction Director Forte Partners.

The Romanian branch of Schrack Seconet was founded in 2008. Lead by Alexandru Mateiciuc, the subsidiary rapidly won national recognition and the office also offers a modern equipped training center for installers, electricians, planners, and sales partners. "From hardware to software, we always ensure that customer investments remain secure and economical throughout the entire life cycle. The simple fact that Forte Partners decided to work with

PHOTOS: VLAD PATRU

us all over again means that we are not making empty promises, we really do protect lives and secure values", says Alexandru Mateiciuc.

Listec: low maintenance costs

For the first phase of U•Center Schrack Seconet realised a combination of automatic detectors, Integral IP and the completely invisible Listec systems. The latter consist of line-type heat detectors, which were mounted on the false flooring, and an evaluation unit. This innovative solution fully met the customer's request for low maintenance and little interaction. For the regular inspections, only access to the evaluation unit is required, but not to the rooms themselves. During the pandemic this was an important feature to reduce human interactions. In addition, the Listec systems also reduce maintenance costs.

The first phase of U•Center has already been completed and sold to one of the biggest retail companies in Romania. The construction of the second phase has begun and will be completed in the third quarter of 2023. Both phases of U•Center will accumulate a total leasable area of 66,000 square metres of office and retail space.

Integral EvoxX: the only appropriate solution

For the second phase of U•Center, Forte Partners decided to use the brand-new Integral EvoxX. This fire detection solution allows an unprecedented complexity of systems to be monitored by a single control panel. In fact, Integral EvoxX proved to be the only solution on the market to cope with the enormous amount of extinguishing and detection systems. Integral EvoxX is suitable and approved for the control of multiple detector zones and for monitoring fire alarms and extinguishing control in accordance with the requirements of the EN 12094-1 and VdS 2496 standards. This unique solution meant considerable cost saving, as it was only necessary to obtain one single control panel thereby reducing maintenance costs.

Secolog IP: 20,000 data points

Furthermore, U•Center is also equipped with Secolog IP to monitor various hazard detection systems at a central location. The system manages a total of 20,000 data points. As an intuitive, secure tool Secolog IP guides through any dangerous situation. Thus, Schrack Seconet proved once again to meet the highest technological standards. ✱

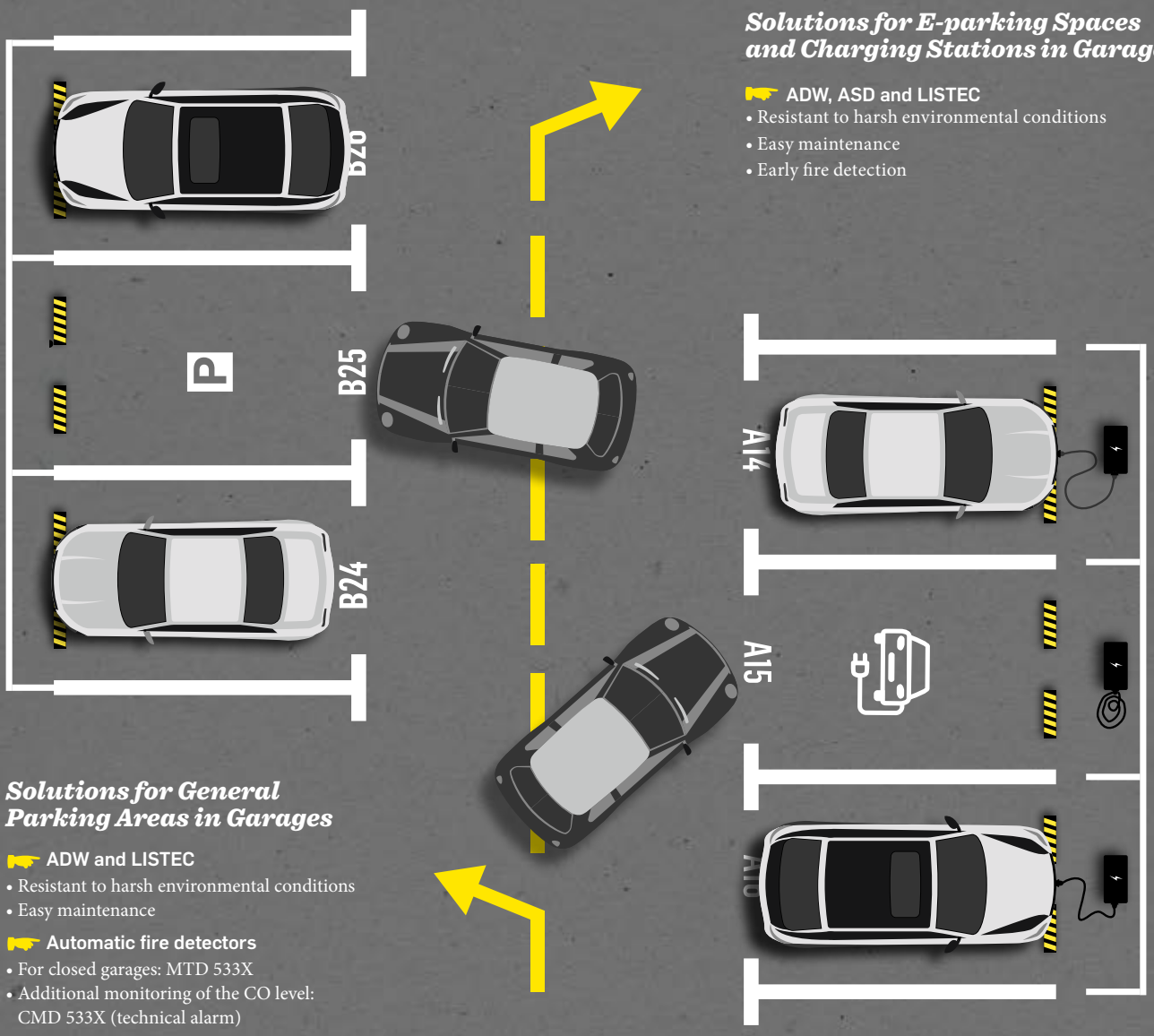
Sustainable building certifications

- **LEED** (Leadership in Energy and Environmental Design) is a certification system for environmentally friendly and energy-efficient buildings, developed in the USA.
- **BREEAM** (Building Research Establishment Environmental Assessment Method) is a certification system for sustainable buildings, developed in the UK.
- **WELL** is a certification system for buildings that focuses on promoting the health and well-being of people. It was developed in the USA.

SUSTAINABILITY

Safely into the energy future

Preventive Fire Protection for Electromobility and Photovoltaics



Solutions for E-parking Spaces and Charging Stations in Garages

ADW, ASD and LISTEC

- Resistant to harsh environmental conditions
- Easy maintenance
- Early fire detection

Solutions for General Parking Areas in Garages

ADW and LISTEC

- Resistant to harsh environmental conditions
- Easy maintenance

Automatic fire detectors

- For closed garages: MTD 533X
- Additional monitoring of the CO level: CMD 533X (technical alarm)

CAR ILLUSTRATION: IHOR BILIAVSKYI / ISTOCK

The special fire risks concerning photovoltaics and electromobility are the focus of a new Securitas Group working group.

PHOTO: ARTJAZZ / ISTOCK

Photovoltaics and electromobility make a key contribution to the energy transition. Schrack Seconet and the other companies in the Securitas Group are now devoting themselves to tackling the special challenges this poses for preventive fire protection, however. "In a separate working group, we specifically deal with key technologies of the future, from electric vehicles to photovoltaics," explains Bernhard Kolber, who is active in the Schrack Seconet working group.

Early Fire Detection in Electric Cars

Interdisciplinary cooperation within the group is particularly valuable here, as the new applications are associated with special fire risks. In the case of electric cars, for example, both the lithium-ion batteries and the charging infrastructure present particular challenges: That's why charging stations should also be able to be switched off automatically if an alarm goes off; a fire in an electric car is completely different from a fire in a combustion engine.
A fire can develop extremely quickly in a battery and it can reach temperatures of over 1,000 °C. This results in heavy smoke development and very toxic emissions.

This makes early fire detection crucial, especially in multi-storey car parks – special fire alarm technology offers proven solutions for this, such as the ADW linear-type heat detectors and sensor cables from LISTEC as well as aspirating smoke detectors. Schrack Seconet boasts a wide product range with ADW 535, ASD 531 or ASD 535 and LIST or d-LIST. They reliably register the lowest level of smoke development or smallest temperature changes and can precisely locate a fire.

Minimising the Risk of Fire in Photovoltaics

Photovoltaic systems also pose their own challenges in terms of preventive fire protection. They are unique in that they can't be switched off easily and produce electricity as long as light shines on the modules. To overcome this challenge, the panels in the new solar park in the United Arab Emirates, which is presented in this issue of fire&care on page 8, can be swivelled so that they face away from the sunlight.

What's more, sometimes it can be treacherous when a fire is only discovered at a late stage, as it can often smoulder for a long time under the large-area photovoltaic elements before it breaks out into the open. The d-LIST and LIST sensor cables address this risk. Installed under the panels, they register even a tiny rise in temperature. At the Lower Austrian industrial company TE Connectivity, this kind of system is already in use at the new photovoltaic plant. ✱

EU funds Photovoltaics

- **Expansion of Photovoltaics in Europe** By 2030, the EU Commission wants to increase power generation capacity through photovoltaics to 600 GW. In 2022 alone, 41 GW of new solar energy was installed throughout the EU – enough to supply 12.4 million households with electricity. [*solarpowereurope.org*]
- **Funding Opportunities in Austria** [*pvaustria.at/forderungen*]

Where Art Meets Security

Prague's Rudolfinum is the seat of the Czech Philharmonic Orchestra and is home to a diverse world of music and visual arts. The building was constructed between 1876 and 1884 and today houses three concert halls as well as the state art gallery, the Galerie Rudolfinum. After its extensive renovation, a new system of voice evacuation and fire alarm systems was installed by Schrack Seconet in 2022.

Prague's Rudolfinum is one of the Czech capital's most important buildings for art and culture. Because of its architecture and acoustics, it was an exciting project in terms of voice evacuation and fire alarm systems.

Concert Hall at Night

"In a building that is used for musical production every day, the biggest challenge probably is finding the right time to work," explains responsible Project Manager Jan Čečrdle from Schrack Seconet Czech Republic. "All measurements and installations had to be done at night."

PHOTO: RUDOLFINUM.CZ

The European regulation for voice evacuation systems in case of fire includes certain parameters for voice intelligibility – and these must be measured room by room to determine the right type of speaker and where it should be located. This is a complicated process in a building such as the Rudolfinum and requires a number of different speakers. Since speech intelligibility is virtually non-existent in the corridors due to the use of marble and glass, so-called column speakers were installed. The situation is improved in the musicians' rehearsal and tuning rooms, as many sound-absorbing materials have been installed there, and so conventional A/B speakers could be used.

Specific Nature of the Dvořák Hall

The largest concert hall in the building complex, the Dvořák hall, presented a number of unique challenges. With a height of around 20 m and a volume of up to 100 DB during a concert, speakers are needed in order to drown this sound out in an emergency. For this reason, the team opted for omnidirectional speakers, hidden above the ventilation grille. In addition, speakers with 250 W are also needed in the ceiling above the ventilation grilles to provide full sound coverage for the room.

In this same hall you'll find the famous Rieger-Kloss organ; its housing is made entirely of wood and so the preventive fire alarm system had to be installed around it. Attaching anything to a musical instrument such as this proved quite difficult since it cannot be manoeuvred easily. For this reason, the music hall decided to use a combination of MTD 533X and line-type optical smoke detectors.

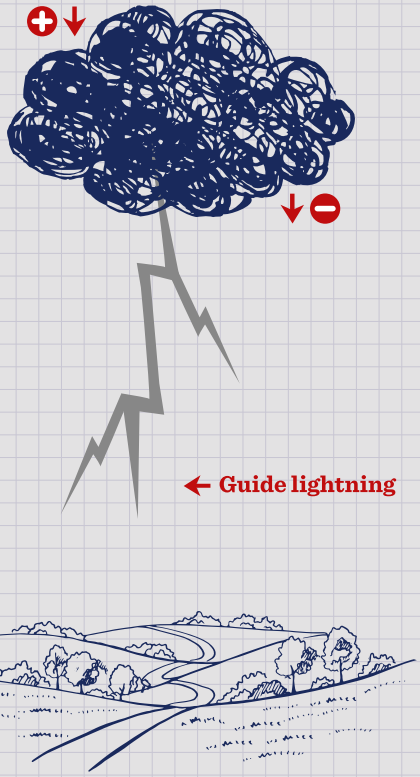
Rudolfinum Gallery

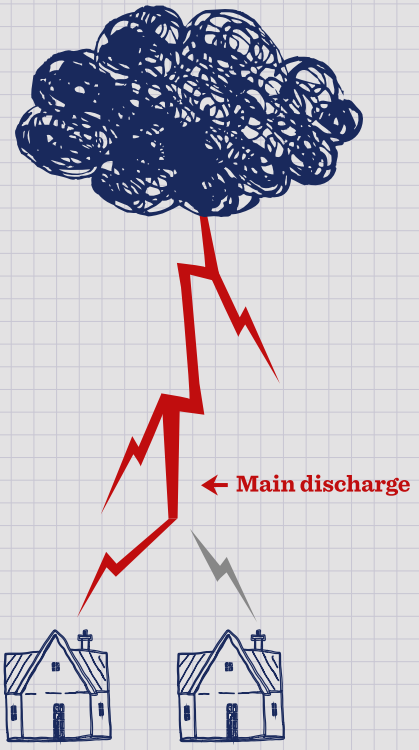
The great hall of the Rudolfinum Gallery is impressive too, thanks to its great height and its huge glass ceiling, enclosed in a metal grille. For preventive fire protection, the ASD 535 aspirating smoke detector was selected, which could be installed invisibly in the grille, so that the architecture was fully preserved and no compromises were made.

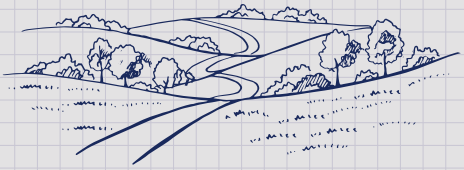
Both the ASD and line-type smoke detector control panels are all connected to the building management system, providing security personnel with a visual overview of all fire protection and evacuation systems. ✱

PHOTO: FABIANO WAEWELL / ISTOCK

Lightning Fast Protection







How is lightning produced?
In a thundercloud, more and more electrical charge is separated. Normally, the negative charge gathers in the lower part of the thundercloud and the positive charge in the upper part. If the field strength at one point becomes too great, a stepped leader develops and seeks connection to the ground. It develops in steps of 50 to 200 metres and is mostly negatively charged. Connecting leaders originate from the ground. One of the connecting leaders connects to the tip of the stepped leader. Then the return stroke occurs, which causes a shock wave that can be heard as thunder. Usually there are several discharges, which can also choose different ground connection points.

How does lightning protection work?
Lightning protection consists of external (lightning protection system) and internal lightning protection (overvoltage protection). For external lightning protection, lightning conductors are installed at the top of an object. They conduct the lightning current to the ground in a controlled way. Overvoltage protection measures are installed in the building for internal lightning protection.

What kind of damage can lightning cause?
If there is no external lightning protection in place, the lightning chooses a free path through the building. Electrical systems are severely damaged by the enormous forces involved. Fires are mostly caused by lightning that occurs in a so-called continuing current. In the process, a sustained current with a very high energy turnover is generated at the impact point after the pulse-shaped surge current. This can cause flammable materials to ignite or thin metal sheets to melt through.

Thunderstorms and lightning cause a lot of damage – precautionary measures can provide important protection. Lightning research also reports significant progress in lightning location and predictive detection of thunderstorms. Austria is one of the pioneers in Europe in this field. For 30 years now, thunderstorm data has been recorded nationwide – a network with only eight sensors is enough to cover the whole country. Wolfgang Schulz is the head of the organisation behind it: Aldis (Austrian Lightning Detection and Information System), a joint project between OVE and the Austrian Power Grid. In the interview, he speaks about progress in lightning detection in Austria, in Europe and from outer space.

fire&care – ***You've been researching lightning detection at Aldis for several years. Why learn about lightning, and what's the data actually used for?***
Wolfgang Schulz – Our information isn't just used by weather services, but also by energy supply companies. They use it to quickly determine if lightning has hit a high-voltage line or if another reason, such as a tree or a paraglider, is responsible for a line failure. If a local distribution network goes down due to lightning, our information can guide the service team to the exact location. One thing you might not think of: A lot of insurance companies use our data too. Every year, thousands of lightning claims are filed as damage. With our data, insurance companies can see whether there was actually a thunderstorm going on at the time indicated.

fire&care – ***Is the lightning information available to the general public too?***
Wolfgang Schulz – Yes, we have a mobile thunderstorm service you can access on your phone. Aldis Mobile shows where there's lightning on a map in real time. So I can see at a glance whether a thunderstorm will catch up with me if I start cycling now. The app is available free of charge for Apple and Android phones. At the moment, we're also integrating a pre-warning function: When you enter a defined location, you then automatically receive a warning on your mobile phone if a thunderstorm develops in the vicinity.

fire&care – ***What's being done to anticipate thunderstorms?***
Wolfgang Schulz – The University of Innsbruck is currently working on an exciting project. We've been recording thunderstorm data at Aldis since 1992. Based on these data, the University of Innsbruck is now analysing different parameters in the atmosphere at the time of thunderstorms. This allows us to recognise which parameters are important for thunderstorms to form, which will also enable more precise predictions about lightning in the future.

fire&care – ***How often does lightning occur in Austria and in Europe?***
Wolfgang Schulz – On very intense days, there can be up to 10,000 flashes of lightning in Austria. The lightning density is highest in Styria and Carinthia. In Europe overall, the area north of the Adriatic Sea in Italy and Slovenia is the region that gets the most lightning. When humid air masses from the Adriatic flow north and meet the mountains there, the risk of thunderstorms is very high. We also have Europe-wide data through the EUCLID tracking network. On an intense day of thunderstorms, we can measure more than 100,000 pulses within one hour in Europe.

fire&care – ***How is the overall thunderstorm situation developing?***
Wolfgang Schulz – As a result of global warming, humidity is higher on average because warm air can absorb more water. Humidity is increasing worldwide and there are more thunderstorms because of this.

fire&care – ***How important is international exchange for you and what are you focusing on at the moment?***
Wolfgang Schulz – The EUCLID network is really important for us. Some countries have joined in recent years and many of them now have the latest sensor technology as we do. Even more homogeneous data will be possible in future thanks to the new Meteosat weather satellites. The third generation of EUMETSAT weather satellites has a Lightning Imager on board for the first time. It captures thunderstorm data visually and can indicate the spatial extent of lightning better than earth-based lightning detection networks. The US already works with a similar system, but it's less precise than the new EUMETSAT. This system was able to detect lightning in South America that extended 150 kilometres – the longest lightning ever measured. The new Meteosat satellite, once calibrated, will certainly improve severe weather warnings. ✱

PROFILE

Dr. Wolfgang Schulz studied electrical engineering at the Vienna University of Technology. He has been involved with lightning detection at ALDIS for over 30 years, and took over as the head of ALDIS in 2022.

PHOTO: OVE SERVICE GMBH-ALDIS / ILLUSTRATION: ELINALEE; DARJA KUZNETSOVA / ISTOCK

Conference in Florence

The 30th conference of the Associazione Italiana Ingegneri Clinici (AIIC) was held in Florence in May 2023. The focus was on the importance of new technologies in the health sector and the associated social challenges. Sustainability, safety and multidisciplinarity are essential factors in this context. The conference was attended by more than 2,000 people, including representatives from science and research, patient associations, healthcare institutions and companies.

The conference was a good opportunity for Schrack Seconet to present Visocall IP and Visocall Mobile. The jury members of the AIIC Awards were also positively impressed by the multifaceted possibilities of Visocall IP. ✱

Radiometric dual cameras

Radiometric dual cameras combine thermal and optical imaging, they provide immediate fire detection with their innovative technology. The Mobotix cameras used at Schrack Seconet have already been certified by three international institutions: VdS, EN 54-10 and the French CNPP.

The Austrian TRVB 123 S (Technical Guidelines for Preventive Fire Protection) now also considers detection by thermography. Schrack Seconet was instrumental in successfully passing the corresponding type test for Mobotix. The combination of thermal and optical image was considered a special benefit by the tester.✱

PHOTO: LUKAS SCHALLER / BELVEDERE

300 Years of the Belvedere

The Belvedere celebrates its 300th anniversary. Built by Prince Eugene of Savoy, it became the Imperial Art Gallery just a few years after his death, making it one of the first public museums in the world. With an art collection ranging from Klimt to Schiele and the magnificent Marble Hall, it's become one of Vienna's most visited attractions.

The UNESCO World Heritage Site has been protected by fire alarm technology from Schrack Seconet for more than a quarter of a century. Modern IP technology, automatic fire detectors, including several line-type smoke detectors, as well as smoke aspirating systems contribute to the highest possible safety of this unique treasure. ✱

New Set-up at the "Nutzen.Leben"

This year, "Nutzen.Leben" took place in Linz for the first time as a combined trade and public fair. Under the motto "Precaution, Security and Trust", public organisations were able to learn more and exchange information on the morning of 27 April 2023. In the afternoon, the doors were also opened to interested members of the public with exciting presentations and a showcase of services provided by emergency organisations, public administration and companies. Schrack Seconet was on site with a stand – perfectly placed right next to the stage: Visitor footfall was particularly high there and the security technology on display was a quick conversation starter. ✱

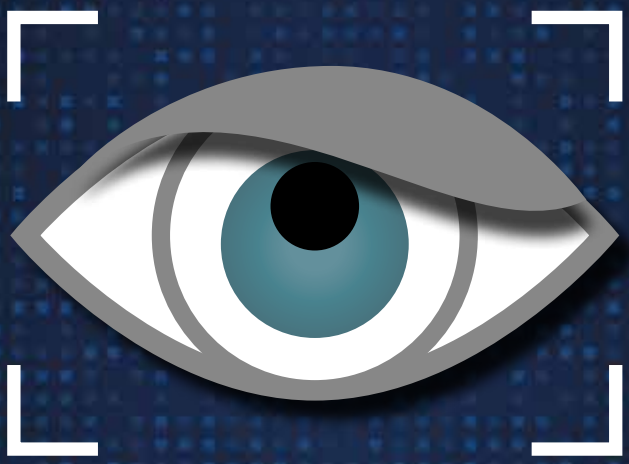
For Schrack Seconet at the "Nutzen.Leben" trade fair in Linz: Niko Paralis, Franz Friedrich and Andreas Resch (from left to right).

One of the World's Longest Road Tunnels

For centuries, the Zigana Pass has been an important transport link and was once also part of the historic Silk Road. However, especially in winter, driving conditions are often difficult due to the weather at an altitude of over 2,000 metres. A double-tube road tunnel now conveniently connects the two provinces of Trabzon and Gümüşhane. With a length of 14.5 kilometres both ways, it isn't just the longest road tunnel in Turkey, but also one of the longest in the world.

Schrack Seconet was responsible for the technical fire protection in this high-profile construction project together with its partner Arte Technology. "We're proud to be part of this monumental project with our technology," says Samet Enginyurt, head of Schrack Seconet's representative office in Turkey. The new tunnel also contributes to climate protection: With the winding, much longer route over the pass no longer necessary, CO2 emissions are reduced. ✱

WATCHFUL EYE



Video surveillance: does it provide security or violate privacy? In a survey throughout Germany, more than 80 percent of respondents were convinced that cameras contribute to safety. This opinion is also supported by practical experience: For example, after cameras were installed at Austrian railway stations, property crimes decreased by more than half. And that's not just evident here: Being observed is an effective means of prevention and video surveillance can give people a sense of security, especially in places where there are few people and after dark.

Modern analytics also make it unnecessary for people to monitor the cameras. Suspicious activity is automatically detected in real time. This means that video surveillance in public spaces has developed significantly since its conception at the end of the 1950s, when it was first used to monitor traffic.

BACKGROUND IMAGE: REWAT SOMBAT/ISTOCK