50 years of history and a bright future
Into the IoT age with experience

Founded in 1972 as SAE Steuerungen Automation Elektronik, this year marks the 50th anniversary of the successor company SAE IT-system GmbH & Co KG. From a small company, which initially focused on the manufacture of electronic controls and key switches for garage doors, the company has grown into an international player in the LACROIX group. We still have local roots but are at home in the whole world.

As an industry pioneer for telecontrol technology, we have the opportunities set the future on the course of innovation and experience in the upcoming change in management. Ronald Vrancken has been SAE’s Managing Director alongside me since January 2022. After 40 years of service, I will be retiring from the company step-by-step this year. Ronald Vrancken, Managing Director of the Lacroix Environment. Activity will also take on the role of CEO of SAE from the middle of the year. As a true industry expert with years of management experience in Germany’s largest electronics group, Ronald Vrancken is just the right person to tackle the challenges of the future. And there are plenty of them: In the course of the digitization of supply networks, new technologies are making their way in. In the course of the digitization of supply networks, new technologies are being introduced. Narrow-Band

IoT (NB-IoT) radio technology, the MQTT protocol for communication in IoT, intelligent patch and device management for the secure and convenient operation of large OT infrastructures and, last but not least, the continuously growing importance of cyber security, all of which have a significant impact on our current activities. We are also benefiting more and more from the synergies with the LACROIX Group. In addition to the close cooperation with LACROIX, impulse in the development of an update server, we would also like to mention the LACBUS gateway, which is based on the SAE telecontrol devices FW-5-GATE and enables a convenient connection of the established LACROIX data loggers to network control stations via IEC 60870-5-104.

I look back with pride on the last year under my management. Despite an enormous headwind caused by limited contact possibilities, an international component crisis, and the flooding of our plant engineering, we were again able to close the year with a record result. In addition, a large number of new employees were successfully integrated, even in times of home office. Last but not least, a new production site was set up within a few weeks. This will make us even more efficient in the future with regard to the provision of complete solutions.

This progress would not have been possible without the motivation, discipline and commitment of our team, and I would like to express my sincere thanks to all of them. After 40 years at SAE and close personal ties to a large part of the team, it is not easy to say goodbye. However, I am convinced that SAE is on the right track and will, of course, remain closely associated with the company.

Joachim Schuster, Managing Director/CEO
Cologne, February 2022
On this date, a three-month parallel test operation of all Redispatch 2.0 target processes will start. The industry will continue to press ahead with the implementation of the target processes and report regularly to the BNetzA on progress. The transitional solution is expressly limited to May 31, 2022.

Further information on balancing group management and detailed processes as well as the legal classification and time limit of the transitional solution can be found on the BDEW website in the documents “BDEW Transitional Solution RD2.0 - General Description” and “BDEW Transitional Solution RD2.0 - General Description”.

As a result, intervention measures can be designed much more precisely, both locally and in terms of their scope, which saves costs.

In this respect, Redispatch 2.0 is a further building block on the way to the smart grid and expands the scope for action by integrating the entities that are primarily responsible for fluctuations/instability in the grid.

Transparency and controllability as a central requirement

The greatest challenges in connection with this new responsibility arise in the network control centers of the distribution network operators (DSOs). Here, precise forecasts of generation as well as reliable forecasts can only be made on the basis of a high degree of transparency about the current processes in the grid.

Therefore, so-called real-time data, such as the active power fed in by renewable energy (RE) plants, must be recorded.

Redispatch 2.0: A real challenge
Postponed but not canceled!

New legal requirements for the management of network bottlenecks should have been implemented by October 2021 in connection with the Network Expansion Acceleration Act (NABEG 2.0). As part of Redispatch 2.0, new processes are to optimize information and data exchange, balancing group balancing, and billing.
m5: The telecontrol part of the solution

Modern RE plants follow the technical connection conditions (TAB) of the DSO and are equipped with telecontrol technology. These plants do not need to be retrofitted to implement the requirements of Redispatch 2.0, since the TAB already allows bidirectional information exchange (usually also active power and command conversion in the sense of Redispatch). For plants that have not yet been equipped with sufficiently performant technology in the course of the EEG or CHP, concepts for reliable real-time data communication and implementation of redispatch measures still have to be defined. For example, plants operated with radio ripple control technology can neither actively report their actual active power fed into the grid nor acknowledge the receipt of control commands to ensure reliable implementation of measures taken. In view of the use of uniform communication technologies, compliance with high safety standards and flexibility with regard to the potentially further increase in communication requirements, we expect that these concepts will also make use of telecontrol technology. The extremely compact m5 telecontrol unit is a safe and economical solution for such a retrofit.

Standard made to measure: Redispatch 2.0 Box

All relevant connection concepts can be realized with our telecontrol systems. For the smallest applications, the Redispatch 2.0 Box contains the m5 as standard. With its customized quantity structure, it offers all the basic functions required for telecontrol. Extremely compact and cost-effective solutions can be found, especially in combination with the associated LTE or MHz-CDMA modem.

Advantages of the Redispatch 2.0 Box at a glance

- Cost-effective complete solution based on the m5
- LTE or 450 MHz-CDMA modem with extensive diagnostic options
- Tailor-made quantity structure
- For digital or analog active power specification and feedback
- Comprehensive IT security features
- Pluggable terminal strips
- Simple parameterization
- Quick commissioning
- Extremely space saving

One salesperson - one word

Delivery times

Thanks to our forward-looking planning and long-term framework agreements, we were hardly affected by the worldwide shortage of components for a long time. In addition, we had built up our stock massively at an early stage, which enabled us to keep delivery times short as usual.

The situation on the world market has deteriorated further in recent weeks. In addition to delivery times of more than 60 weeks for individual components, delivery dates that had already been agreed have been postponed, in some cases several times. An improvement of the situation is currently not in sight. We have therefore also had to adjust our delivery times.

Looking forward together

Salespeople are by profession not at a loss for words. At a sales meeting, they offered their help to production to speed up the processing of orders. Our colleagues from production didn’t need to be told twice, and on the morning before our summer party, they asked our field service colleagues to assemble the Redispatch 2.0 Box in. Don’t worry, these are only the demonstration models for customer meetings.

It is precisely with this team spirit that we are trying to minimize the impact of this unusual time for you. Help us to do this: forward-looking planning will be even more important for 2022. We therefore ask you to actively involve our sales staff in your planning.
Leipziger Stadtwerke uses our technology to reliably supply its customers with district heating. With this technology, all information from the network can be recorded promptly and reliably. The Leipziger Stadtwerke made a conscious decision not to integrate a locating function, but instead to rely on automatic loop separation. This was an idea from Leipzig, which we integrated quickly and pragmatically into the solution.

Leipzig municipal utilities digitalize their district heating network with SAE technology

Leipziger Stadtwerke

The district heating network of the Leipziger Stadtwerke is around 500 km long and conveniently supplies around one third of Leipzig’s inhabitants with environmentally-friendly district heating. A total of 1,000 km of pipes are installed in the network, including around 600 km of plastic-jacket composite pipes. This makes the network a real heavyweight in the German market, and it is set to grow further. With the expansion and densification of the routes, Leipziger Stadtwerke and its subsidiary Netz Leipzig are strengthening Leipzig’s reliable, flexible and future-proof heat supply. The aim is to create the conditions for efficiently supplying heat generated in combined heat and power plants to an increasing number of Leipzig’s homes and businesses.

Leakage monitoring, especially of plastic jacket pipes, is particularly important in a network of this size in order to detect faults early and avoid considerable consequential costs. This is exactly where our telecontrol solutions come into play.

For operational network use, it should also be possible to visualize the recorded information in Grafana (image below), an IT platform for various applications for the graphical representation of data from different data sources.

We have been supplying many German municipal utilities and energy suppliers with telecontrol solutions for 50 years. The core of our technology is to guarantee the secure transmission of information between the infrastructure of the municipal utilities (electricity, gas, district heating) and their control center. We not only master all the complex protocols required for this, such as IEC 61850, 60870-5-101 or -104, but also have expertise in selecting and setting up suitable communication channels. In addition, we have extensive know-how in the area of IT security for the electricity market, which has been subject to the highest requirements for a long time.

The focus of the Leipziger Stadtwerke project was on the time-sensitive and secure collection of information from the network. Control interventions were not initially planned. The target was to equip more than 90% of the plastic jacket pipe network with monitoring technology, for which a total of around 200 SAE telecontrol devices would be required.

Leipziger Stadtwerke has enjoyed positive experience with 21 FW-5 gate telecontrol devices and the associated ISO-1 extension modules for insulation measurement, which have been used for monitoring CU loops for some time.

From the company’s point of view, a loop length or monitoring distance of around 5 km per ISO 1 assembly proved to be an economical order of magnitude. Only the individual components were purchased from SAE.

For operational network use, it should also be possible to visualize the recorded information in Grafana (image below), an IT platform for various applications for the graphical representation of data from different data sources.

The decision is an important part of the promotion of young talent in the company. The individual components are brought together in the in-house training center and the switch cabinet construction is carried out entirely by the trainees of Leipziger Stadtwerke. In this way, the understanding of technology and the bond with the company is strengthened.

A real challenge: power requirements and radio illumination

There are two particular challenges to overcome in the practical implementation of the project:

On the one hand, the availability of a power supply at the installation site must be ensured for installation of in-house connection stations. For this purpose, it is first checked whether the house connection stations are owned by the municipal utility and only then is the technology connected in order to avoid the organizational effort for coordination with third parties and to be able to make the decision on the possibly necessary retrofitting of a power supply independently.
On the other hand, in some locations, especially in the area of the Port of Leipzig and in areas with many concrete buildings, inadequate radio coverage makes the project difficult. To prevent this problem, the radio coverage and the accessibility of the area at any time are checked before the final and specific site selection.

From the point of view of Leipzig’s municipal utilities, the conscious decision not to integrate a localization function into the SAE systems is a logical one: multiple errors and incorrect network documentation could falsify the localization of damage; therefore, errors are still measured individually anyway. The often expensive feature of localization can therefore be dispensed with - global monitoring of the network is crucial in order to detect negative developments at an early stage and to be able to react to them.

The service mode of our systems enables loop closure for mobile site measurements and also offers a self-protection mode that decouples the sensitive measuring core of the devices as soon as a loop disconnection is detected. Upon subsequent loop connection, the device is recoupled. The devices also switch on again after an error message. Currently, the service mode is only activated locally at Leipziger Stadtwerke; however, activation via remote access is generally possible.

The LTE/UMT network is used as the communication path and is linked to external networks managed by the IT department of the Leipziger Stadtwerke. The mobile radio connections to the FW-5 gates and to the mobile radio routers are also implemented via a closed user group (CUG), which provides additional security for transmission.

The systems are connected in a standardized protocol, with which the data and measured values are transferred to a digital platform of the Leipzig municipal utilities, where they are available to the Grafana IT platform.

**Simple parameterization via setIT**

As with all our telecontrol devices, parameterization takes place exclusively via the configuration software setIT. The innovative software distinguishes itself as it is extremely user-friendly and enables trouble-free, rapid commissioning. Even complex functions are conveniently integrated and can be set up with just a few mouse clicks.

In order to simplify the entire process, Leipziger Stadtwerke aimed for the most uniform parameterization possible for each device. Therefore, only three basic parameter sets were defined, which are used depending on the requirements of the respective station.

In the event of an alarm, the prompt transmission of information from the SAE system to Grafana and to the mobile devices of the employees who are on site for the leakage monitoring system is of particular importance.

**Investment paid off faster than expected**

The SAE components were installed in June 2020, following the acquisition of a new local district heating network (in Markranstädt near Leipzig). In the course of construction work in this area, damage to the district heating pipeline was caused by a contractor.

The fault could be identified immediately by our technology. In the case of “normal” cyclical measurement (usually only once a year), this fault would probably not have been found in time and could have led to the spread of the damage and considerable consequential costs. Clarifying responsibility would also have been much more difficult.

During fault location, the loops are separated in order to make the section to be measured as small as possible and to be able to precisely measure the damage. The measuring loops with the measuring points are stored in the GIS application (picture above) and are available when processing the leakage monitoring system.

According to Leipziger Stadtwerke, we convinced them during the pilot project with the rapid reaction of the development department, both on the hardware and software side.

The flexible integration of new ideas from Leipziger Stadtwerke, such as automatic loop separation, proved our pragmatic approach. The targets set in the network areas already monitored were achieved and the further expansion of SAE technology is being implemented step by step. It provides transparency and helps to avoid grid shutdowns by quickly identifying and isolating faults.
The MQTT protocol (Message Queuing Telemetry Transport), which is based on TCP as the transport protocol, was developed for M2M (machine-to-machine) communication in low-bandwidth environments. The basic idea is to reduce network bandwidth and device resource requirements and increase communication reliability. Although initially developed as a proprietary protocol, it was released royalty-free in 2010 and declared an OASIS standard in 2014. In the meantime, MQTT can be seen as a quasi-standard for IoT communication.

What is behind MQTT?

The core principle of the lightweight network protocol is the publish-subscribe pattern. There is no end-to-end connection of the communicating instances, but a central component, the so-called MQTT broker, which manages a theoretically unlimited number of MQTT clients. These clients can provide information to the broker (publish) or retrieve information from the broker or subscribe to it (subscribe). So-called EoN nodes (Edge of Node) can act as gateways for devices that cannot communicate via MQTT themselves.

The information exchange takes place with a so-called topic, which can be understood like a subject. Topics are hierarchically structured and can be compared with a folder structure in terms of syntax, for example "Building/Room4/Lamp". These topics can be subscribed to by the clients. The message content is provided with the so-called "Payload". In our example: "On / Off".

Why MQTT?

Similar to modern production processes, for which MQTT was originally developed, a multitude of information must be exchanged between different entities in the operational technology structures of intelligent supply networks.

Due to the continuous growth of decentralized generators and the new requirements on the LV side, such as wall boxes (e-mobility), solar power plants, cloud-based systems must be considered. For this purpose, our telecontrol systems support the MQTT protocol and can thus transfer selected information securely and reliably into the IoT world.

In addition, the protocol offers features that make it attractive for use in critical infrastructures. Messages are exchanged with a defined QoS (Quality of Service), which can be defined in three levels:

- Once at most (0)
- At least once (1)
- Exactly once (2)

This allows the transmission security to be adapted to the respective requirements and network conditions.

Two other features provide an additional added value:
On the one hand, a definable „last will“ of a client, which is executed after a connection interruption, and on the other hand, the so-called retain flag, which temporarily stores the messages at the broker and provides clients, which subscribe to this topic only later, like an archive. The possibility of encrypting MQTT messages via TLS protocol also makes MQTT an interesting solution for setting up additional information paths to relieve the classical control systems.

**MQTT + Sparkplug**

One weakness of MQTT with regard to its use in OT structures is its general openness: In classic, pure MQTT, there are neither fixed specifications for the concrete design of the topic nor for the representation of the payload. In addition, the integration of state information is not clearly regulated. This potentially results in a high effort for the harmonization and integration of different devices and instances. This is exactly where the freely available „Sparkplug“ specification developed by the Eclipse Foundation comes in. Version B of the standard offers concrete specifications for the optimal use of MQTT in the context of OT structures.

To this end, the following three objectives are pursued:

- Definition of an MQTT Topic
- Definition of the MQTT payloads
- Definition of MQTT state management

As a result, Sparkplug is a vendor-neutral specification for data formats, topic structures, state management, and the structuring of topologies in IIoT scenarios.

SAE will also allow the use of Sparkplug (B) specifications for its telecontrol devices in the future as part of its implementation of the MQTT protocol, and can thus act as a client or as an EoN node.

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**Redispatch 2.0 and MQTT in practice**

**Example project of Stadtwerke Neustadt**

*Electricity · Redispatch 2.0 · IoT*

At Stadtwerke Neustadt, the new communication technology is being used to master a challenge that is also very topical in the industry: Redispatch 2.0!

Specifically, the active power of generation plants is tapped by an m5 telecontrol device installed in the meter panel at the existing smart meters from EMH. The IEC 62056 (formerly IEC 1107) meter protocol is used for this purpose. If a power reduction is necessary, this is also controlled via the m5.

In addition to the traditional transmission of information via IEC 60870-5-104 to the control center of the municipal utility, the m5 also provides the active power in parallel to an MQTT broker, where the interested and authorized „clients“ (e.g. the plant operators) can retrieve the information. Communication takes place using the m5-4G LTE modem.

*Remote control technology used: m5-4G*

With the m5-4G, an LTE module is available for our m5. In addition to the preparation for international radio approvals, it offers the parameterization and diagnostic functions already known from the FW-5-GATE-4G via setIT.

Furthermore, no additional power supply is required for the m5-4G, as it is powered by the m5 base module. This allows extremely compact and attractive overall solutions to be realized even for the smallest applications.
VeN²uS: more capacity for the transport of green electricity

SAE IT-systems is project partner in the research project of Schleswig-Holstein Netz AG

VeN²uS? A new ESA project? No, far from it, but a look at the project’s namesake provides an interesting introduction. Venus is considered the sister planet of Earth. It is almost exactly the same size and its orbit is only 40 million kilometers away from that of Earth. However, both planets developed very differently: while on Earth the variety of organisms familiar to us today has developed, on Venus an effect not known to us ensures a surface temperature of 470 degrees Celsius. On Venus there is an extreme greenhouse effect.

Of course, this comparison is lopsided, but at one extreme it illustrates the importance of renewable energies in the energy mix of the future. With increasing weighting, the challenges for grid stability also increase. The increasing integration of decentralized generation plants (DEA) creates new feed-in points in the distribution grid level, which can cause grid bottlenecks and power flow shifts there. Re-feeding into the superimposed grid level and frequent grid topology changes are already necessary today. If uncontrollable conditions are detected for the existing protection concept, fast action is required and the DEA must be deactivated.

This is precisely where the VeN²uS (VEnNetzte NetzschUtzSysteme, connected network protection systems) research project comes in. Digitally networked and flexibly adaptable, the research project is intended to create new setting parameters for the transport of green electricity and ensure supply security in the grid of the future, even with fluctuating feed-ins of renewable energy. The aim of the research project is to develop and implement an adaptive and networked grid protection system that adjusts the protection parameters in the event of power flow shifts and topology changes and ensures safe operation.

The project team consists of two distribution grid operators, one control system, one communications technology, one protection device and one protection test device manufacturer each, as well as a software developer for the digitalization of distribution grid operation and four university partners. This cooperation is to develop and test such an innovative grid protection system over the next three years under the leadership of Schleswig-Holstein Netz AG (SH Netz). The project is funded by the German Federal Ministry of Economics and Climate Protection (BMWK) under the 7th Energy Research Program (BMWK) under the 7th Energy Research Program and has a project budget of over eight million euros. SAE IT-systems is one of the 11 partners forming the interdisciplinary project team.

Product Manager Christof Maahsen, the project manager responsible for the research project at SAE IT-systems, explains: “80% of the energy required in Germany is to be provided from renewable energy sources by 2050. It is obvious that this can only be achieved with a significant change in the existing infrastructures. Digital security concepts are indispensable for this future power grid. In the VeN²uS project, the strengths of the individual partners are networked. The new grid protection system is designed to centrally converge data streams and automatically calculate new setting parameters that match the current network situation.

“To this end, the project team is first developing an adaptive network protection algorithm that enables the system to learn continuously. In parallel, resilient and reliable communication and protection test concepts are being researched. We are very proud to be part of this forward-looking project.”

The solution developed is not only being tested in the laboratory as usual, but is also being tested for the first time in Germany in a comprehensive field trial in a real distribution network area of SH Netz. The new grid protection system will be installed parallel to the existing protection devices in the substations and switchgear. This ensures that the new system does not affect the daily network management and can still be tested under real conditions.

It is hoped that the system will not only make a positive contribution to the energy transition and security of supply, but will also have a positive effect on efficiency and capacity utilization.

List of project partners (alphabetical)

- amperias GmbH
- COMSYS – RWTH Aachen University
- EES – Friedrich-Alexander-University (FAU) Erlangen-Nuremberg
- EET – Hamburg University of Technology (TUHH)
- IAEW – RWTH Aachen University
- LEW Verteilnetz GmbH
- OMICRON electronics Deutschland GmbH
- PSI Software AG
- SAE IT-systems GmbH & Co. KG
- Schleswig-Holstein Netz AG
- Siemens AG
Smart infrastructure for more environmental protection and security supply

Interview with our Managing Director Ronald Vrancken in the magazine gwf-Water | Wastewater

Many experts from the water industry are convinced that digitization makes the water sector greener and increases the security of supply and disposal. Questions tend to arise about “how” and “how much”. Which components and processes are needed and how can we determine which ones can be used sensibly, taking into account the respective boundary conditions?

How do you assess the degree of digitalization in the water sector?

This depends on the geographic areas or countries. In Europe, and especially in France, Spain, Italy and Germany, the level of digitalization is quite high and growing. After an initial phase of automating telemetry and process control in water production networks since the 1980s, we are now focusing on the digitalization of the water distribution network, leakage detection to reduce water losses, remote meter reading, and monitoring of wastewater networks to protect the environment and comply with European regulations.

Who do water and waste water utilities turn to directly when they want to increase the level of digitization in their plants?

In many places, the large water utilities in Germany have in-house engineering capacities for the implementation of digitization projects. Small and medium-sized companies usually rely on neutral planning and consulting firms that specialize in the application of digital technologies in the water sector and already have a good relation there. In addition, we are also available for consultation in our local offices, such as here in Cologne, when it comes to digitizing networks.

Consulting does not consist of telling the customer which and how many devices he should buy, but of finding a solution for his requirements. In most cases, this advice is provided by planning offices that offer manufacturer-independent advice. Those who contact us directly usually already know what they need. As an industry specialist for the water industry, we can of course also provide this advice.

How does the construction of a smart network work?

The first step on the part of the client is to present a concept. He describes the problem to be solved with the help of digital technology and defines the data to be monitored, recorded and analyzed to analyze, improve the efficiency and safety of water production and distribution. The second step is to define the points at which data are to be recorded. Equally important is the choice of the best communication medium. In the past decade, PSTN (Public Switched Telephone Network) or radio links have been used, but with GSM, GPRS and LTE mobile phone standards, as well as Ethernet, new possibilities are opening up for remote access and control of all water systems. Improved electronics design and low power consumption allow access to telemetry in very remote locations using batteries, such as water reservoirs, underground water meter shafts, or combined sewer overflows.

Which communication option is chosen depends on the availability for each plant to be monitored and the frequency of data communication and exchange. In an area poorly equipped for communications, such as outside the major metropolitan areas in Africa or Asia, this may be a direct radio link without the need for an external communications network. It is important that hardware and software are selected in accordance with local conditions to ensure robust and secure operation.

We offer a selection of devices such as RTUs and data loggers that are easy to install and set up. They can be easily used by water operators and upgraded as needed. For example, in terms of the number of inputs and outputs to be monitored, new communications media, changes in parameters, process control, etc. However, these components should not be considered in isolation, but rather integrated into an overall system, which we call an ecosystem. This can also be an existing visualization or control system provided by the customer.

How does the involvement of employees working with new technologies work?

Human acceptance of digitized systems is an important prerequisite for success. We have been in the telemetry business for 50 years. Throughout that time, telemetry has always been seen as modern and disruptive.

The flood disaster in July 2021 showed the limits of digitization: Has this led to new insights into what should be done differently in the future?

During a heavy rain event, a flood wave in a river takes its start in smaller streams. Here we can set up measuring points that, in addition to recording the rainfall, also monitor the levels of these streams. This can provide important information on whether and where structures need to be built or upgraded in order to effectively protect the lower reaches from larger flood waves. Often, these measuring points are not monitored today and are also difficult to develop due to a lack of infrastructure. Here we can effectively offer a solution to install a permanent level monitoring with our battery-supported, self-sufficient data loggers.
**Special features of SOFREL data loggers**

**Strong signal:** Integrated high-performance antenna with reflector for 2G/4G M2M data transmission from closed manhole structures.

**Floodable:** Housing and connections are water-tight according to protection class IP68 (2 m, 200 days).

**Protected electronic components:** Connectors sealed watertight inside the housing and the system board coated with protective lacquer for permanent protection of the electronic components against environmental influences, corrosion and mechanical impact.

**Service-friendly:** Two-part, screwless connected housing with double O-ring seal and coarse thread clamping ring.

**Communicative:** SIM cards (must not support roaming) with a fixed IP address are required in both the GATE and the data logger (independence of the mobile radio provider).

**Independent:** Manufacturer-independent choice of digital and analog standard sensors.

**BSI Criticality Ordinance-compliant:** Data from process monitors can be stored on dedicated computers.

**Self-sufficient:** With replaceable internal battery for up to ten years of battery life.

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**Control of the water network**

Typical measured values from the control of water and waste water networks, such as flow rates, pressure, flow rate measurements at stormwater overflow basins, and water levels (ultrasound and RADA sensors) are collected centrally from remote measuring points in the SCADA system (or the control center).

Cooperation through direct data exchange between elevated tanks and the associated pumping stations is essential for controlling a water network. The LACBUS gateway can be used directly - i.e. without a detour via the control system - to exchange data and communicate with other SAE telecontrol stations and to trigger pump commands. Stand-alone solutions that can perform semi-autonomous control tasks independently of the higher-level SCADA system are easy to set up and can be parameterized as an error chain.

A connection to existing PLCs, e.g. in decentralized buildings, is also unproblematic thanks to various interfaces such as Profinet, Modbus or MPI.

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**Data loggers from LACROIX**

The battery-powered M2M data loggers from LACROIX are characterized by unique reliability and universal application possibilities. They are flood-proof according to IP68 (2m) and guarantee a long-lasting and self-sufficient data transmission via mobile radio due to their powerful battery. The connected sensors can also be supplied with power for the measuring cycles by the data loggers. The modular design of the devices allows simple hardware upgrades, even on site, as well as functional extensions with software options.

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**Secure connection to the control center with SAE technology**

The LACROIX data loggers can communicate with SAE’s LACBUS gateway. The prerequisite is a piece of private “Internet cloud” (private APN) provided by a provider. The LACBUS Gateway is based on the FW-S-GATE or FW-S-GATE-4G and allows the conversion of the Lacbus data to the IEC 60870-5-104 standard.

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**Condition monitoring even of remote locations with 10-years battery life**

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**SOFREL and SAE**

Two strong companies form LACROIX ENVIRONMENT

Water

Benefit from synergies through the cooperation between SAE and the LACROIX Group. This now brings you advantages through shared know-how. By using SAE telecontrol technology, SOFREL data loggers can be easily connected to network control centers via IEC 60870-5-104 to centrally monitor drinking water and wastewater networks.

**Visit us and our colleagues from LACROIX Environment at the IFAT in Munich from May 30 - June 3 2022 in Hall C1 / Booth 223/322**
Simple parameterization via setIT

The data logger series LS, LT, as well as the ATEX data loggers from LACROIX are fully pre-configured and easy to connect via the associated parameterization software setIT. SAE telecontrol stations as a gateway allows the connection of up to 50 data loggers to your control center.

By accepting all data points, all recorded measurement data, balanced values, diagnostic data and fault messages can be transferred to the SCADA system connected via IEC 60870-5-104 protocol and displayed there.

The parameterization software setIT allows a fast commissioning and a high compatibility of the telecontrol systems. In the case of the FW-5-GATE-4G, the complete parameterization of all components of the device in setIT also eliminates the sometimes time-consuming integration and adaptation of an external modem. In addition, all available information of the mobile radio module can be used in the diagnostic functions of setIT.

Data logger product extension

The data loggers are also available with MODBUS input. In addition to the familiar digital and analog inputs, up to 8 measuring sensors can be operated in parallel via MODBUS and can autonomously be supplied with energy. This opens up many new measurement possibilities. Multi-parameter probes can be used to measure temperature, conductivity and pH values, for example, to investigate groundwater or to monitor the penetration of seawater into the groundwater body.

Radar probes with improved resolution compared to 4-20 mA A/D converters can also be connected with MODBUS. The data loggers can still operate autonomously and supply all sensors with power (up to 20V or 2W).

In addition, the data loggers are also compatible with LTE-M and NB-IoT 4G networks. This “Low-power wide-area networks” offer not only improved energy efficiency, which has a positive effect on battery life, but also better building penetration, so that the data loggers can reliably transmit data even from shafts.

Overall, this can significantly reduce operating costs, for example through more cost-effective contracts with communication providers.

Successful tests in Morocco

The goal of a test in Morocco was to be able to recover the data recorded by the LT-US data logger in real time and in archives via the FW-5-GATE front end:

- Index (counter)
- Water level (analog value)
- Sensor error (all-or-nothing value)
- Battery life of the data logger

The LT-US, the FW-5-GATE and the PC were equipped with Orange SIM cards running on the 3G network (fixed IP address and private APN). The test result was positive: The communication between the data logger and the simulator PC was successful; the information received from the IEC 104 client is correct, the TIDs (type identifiers) match the IEC 104 protocol. The declaration of a new ASDU and a second IEC 104 client on the FW-5 GATE was possible without any problems. The communication test of the LT-US data logger via the FW-5 frontend is conclusive, the same verdict applies to the other data loggers working on the same principle.

More information?

Dr. Torsten Kasel, Area Sales Manager

Among other things, Dr. Kasel is responsible for the development and sales of the LACROIX Environment portfolio in the field of Smart Water Solutions and takes over the integration process during the implementation of individual projects.

Together even stronger, even more informative

SAE and SOFREL with joint LinkedIn channel

Our LinkedIn channel has moved! As part of the new brand identity of the LACROIX Group, we will only communicate on a joint LinkedIn company account: LACROIX - Environment.
Our exhibition stand to explore
Immerse yourself in our smart environment

The industry’s leading trade fair E-world energy & water has also been postponed in 2022. We are confident that the show will take place from June 21 - 23, 2022. To shorten the waiting time, we would like to present to you in this form our new trade fair stand, our innovations and our main topics, which you would actually have experienced live in February.

Local network automation
Setting new standards

Uniform concepts are sensible, especially if a large number of stations are to be equipped. With a view to fast initial commissioning and service work, a solution in a separate cabinet is recommended, so long as there is enough space available. A uniform design and standardized connection concepts allow very efficient implementation and replacement processes, e.g. by using a standardized plug to connect to the network station according to the “plug and play” principle.

Redispatch 2.0 Box
Our compact solution

With our telecontrol systems, all relevant connection and control concepts can be realized. For the smallest applications, the Redispatch 2.0 Box comes with the mS as standard. With its customized capacities, it offers all the basic functions required for telecontrol. In combination with the associated 4G or 450 MHz CDMA modem, compact and cost-effective solutions can be found.

Mobile low voltage measurements
The new mobile SAE telecontrol case

The centerpiece of the SAE telecontrol case is an FW-5-GATE-4G with three PM-1-R extension modules (for Rogowski coil). The advantage of this technology compared to other concepts available on the market is the existing interfaces for a direct connection to the control system via IEC 104 and LTE as a communication medium. More detailed information also on page 18.
Your invitation!
Book your free trade fair ticket

We will be happy to send you a voucher for free admission to the trade fair or to arrange an appointment at our booth. You can reach us at 0221 / 59 808-0 or by e-mail at info@sae-it.de. Your regional contact person will also be happy to help you. We look forward to seeing you there!

Connecting data loggers via IEC 60870-5-104
LACBUS Gateway

The LACROIX data loggers can, in a private mobile network, communicate with the LACBUS gateway from SAE. The gateway is based on the FW-5-GATE-4G and allows a secure conversion of the LACBUS protocol to the IEC 104 standard by means of the additional LACBUS driver. More detailed information also on page 11.

District heating
Digital loop monitoring

A continuous digital monitoring of plastic jacket (KMR) offers considerable advantages, such as reduced downtimes and repair costs, thanks to rapid fault detection. In addition, the clarification of liability issues in the event of third-party damage is facilitated. The ISO-1 and PIT-1 extension modules allow a safe and cost-effective solution based on established SAE technology.

Generating plants
m5 as a gateway

With two separate LAN segments for continuous communication via IEC 104, a lean quantity structure for signaling and feedback of emergency stop, door contact and, if necessary, control of signal lamps, as well as the visualization options via visIT, the m5 provides the perfect basis for a cost-effective solution for connecting decentralized plants.

Stations automation
BCU-50 with visIT visualization

In the field of station automation, the highest demands are placed on the resilience and transparency of solutions. For this purpose, our BCU-50 meets the high requirements of IEC 61850-3 with regard to shock resistance and EMC. The visualization tool visIT creates transparency for the personnel on site, which is made possible by the automatic import of all process variables from setIT, as well as the simple and fast creation of individual station visualizations.

Visit us at the E-world in Essen
June 21 – 23, 2022
in hall 2 / booth 2-401
The near-forgotten normality
In-person Expert Days

The decision was the right one. Thanks to good preparation and a bit of luck with an incidence of around 60, we were able to welcome around 140 participants. Of course, the safety of all participants was paramount. We only attended locations with a proven hygiene concept.

Exciting topics were on the agenda. In addition to the changes at SAE over the last two years, the industry topics naturally played a decisive role: Redispatch 2.0, IT security, status quo in the local network, monitoring of district heating networks, and device and patch management are just a few of the buzzwords that were discussed.

Interest in the topic of MQTT (Message Queuing Telemetry Transport) remains high. During the Experts Days, we were able to demonstrate that our remote systems support the MQTT protocol and can thus transfer selected information securely and reliably to the IoT world.

The technical events were flanked by informative guest presentations by participants on current projects, solutions and, of course, active discussions about the top industry topics.

Applause for our colleague

The informative events were rounded off by some evening entertainment. This was well-earned after a full day of seminars and was a nice conclusion to a successful day, while also a possibility to discuss certain topics 1 to 1 in more detail.

A colorful program was offered, from a historical city tour in Ulm with the full commitment of our sales force colleague David Guder to a dinner with local delicacies in Hamburg, and brewery tours in Bremen and Cologne.

Do you have ideas or suggestions?

innovation@sae-it.de

Communication with our customers is enormously important to us. This is the only way to come up with new ideas and developments. Sometimes you have ideas and don’t know exactly who the right contact partner is. For cases like these we have set up a central email address. Challenge us! We are looking forward to your suggestions!

In Ulm, the participants took part in a historical city tour that surprised even the hard Ulm residents. Not everyone was aware of the musical talent of our colleagues David Guder (Sales South-West).
10,900 railroad ties on 35 km or rails and more than 50 SAE telecontrol devices

SWU tramway project with SAE technology in Ulm

Before the tram Line 2 in Ulm could begin operation on December 8 2018, a great deal of preparatory work had to be done. The tram line runs from Theodor-Heuss-Platz to the Science Park II via Eisenberg, and has been very well-received by the citizens of Ulm since its inauguration. To ensure that operation runs smoothly and that it can be constantly monitored, some SAE technology has also been installed.

Planning began back in 2016 with the conversion of the energy control center and an associated changeover of the communication protocol from IEC 60870-5-101 to IEC 60870-5-104.

Construction of Line 2 began in 2017, and the integration of SAE telecontrol technology was a key element in controlling and monitoring the network right from the start. For this purpose, the complete telecontrol technology at stops and switch systems was renewed and expanded. In 2018, the provisional operation of Line 2 started. Some installations had not yet been completed and parts of the network had to be further expanded. With the completion of the connection to the central network control center in 2020, the new Line 2 was fully integrated into the streetcar network.

The SAE Expert Days 2021 made their first stop in Ulm. Guest speakers were Sebastian Grenzner, Head of Telecontrol at Stadtwerke Ulm/Neu-Ulm Netze GmbH, and his colleagues Christian Miller-Winterscheidt and Pierre Tominac, who gave an interesting presentation on the telecontrol connection of the tramway lines 1 and 2. As hospitable as the people of Ulm are, they invited the SAE team to visit the control center and the tram headquarters the following day.

On site in Ulm was SAE project engineer Sebastian Londa, who brought the integration of the visualization of stops, switches and lubrication systems to project completion. The rail network can be monitored and controlled in real-time via a centrally located monitor. In addition, the filling levels of the lubrication system can be checked and the rail heating system can be operated.

A total of more than 330 telecontrol devices

In the transport sector, which includes trams, more than 50 SAE telecontrol systems are installed. In the electricity sector, there are also around 200 telecontrol systems for monitoring and controlling the renewable energy plants. Another 80 telecontrol stations are installed for additional applications, such as on the premises of Stadtwerke Ulm/Neu-Ulm Netze GmbH.

Control via service PC

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setIT V7

The new version V7 comes up with some innovations. Among other things, the following functions have been integrated:

- MQTT publisher: The central aspect of MQTT is an event-driven publish/subscribe architecture. There is no end-to-end connection, such as with HTTP with its request/response architecture, but rather a central server (broker) to which the sender and receiver of data connect in equal measure.

- DNP3 defines two types of endpoints that communicate with each other: a master and an outstation. If we are DNP3 masters, this runs on our station and stores all data arriving from the outstation, which it then processes for display.

- SNMP Agent: The agent component of SNMP usually runs on the monitored server system, appliance or network device. They can capture and transmit system states.

- The object search in IEC 61850 parametrization.

straton integration

The new software version setIT V7 offers the Possibility of modular and flexible automation software strategy. These cover all areas of industrial and automation control, from embedded solutions to soft PLCs.

The integrated IEC61131-3 editor is an intuitive and powerful development environment that allows you to develop your applications as easily and efficiently as possible. After an intensive comparison with the solutions available on the market, straton is the most comparable with setIT and therefore the software will form our standard for PLC programming in the future.

UOur latest product, the m5 telecontrol station, is already aligned with this new standard and PLC programming with codeIT is no longer supported.

New training: setIT update

Have you installed a setIT innovation, received all release notes, but are not yet familiar with all new functions? No problem, our latest training setIT update summarizes the most important innovations. In our new training format, the current functions, new hardware and adaptations in setIT are explained and demonstrated in the user-friendly parameterization software.

Prerequisite for participation is previous participation in the setIT basic training course or comparable basic knowledge in the use of setIT.

setIT subscription in a service contract

The setIT subscription is part of our service contract, which has been available since 2020. This includes:

- An annual system check with a detailed analysis of the customer’s system with regard to occurred errors, the topicality and relevance of the system settings, the derivation of any recommendations for action as well as the presentation of new functions in setIT.

- The provision of the latest program versions of setIT without further costs for a change of the main version, unlimited use of all product improvements and new functions and includes the free use of our support service (service hotline). The software subscription is billed in the form of an annual fee.

- An annual software update of the telecontrol technology and routers. Based on the weak points identified in the system check and the recommendations for action given, substations and control centers are loaded with new setIT configurations and then a plausibility check is performed. This improves the security, maintainability and expandability of the overall system (requires commissioning of the annual system check and the software subscription).

Training 2022

The SAE Academy offers customers and external partners comprehensive product training and seminar programs. The aim is to make your employees experts in the parameterization, safety and general maintenance of our products.

setIT update

05.04. - 06.04.2022
10.05. - 11.05.2022
20.09. - 21.09.2022
09. - 10.11.2022
02.03.2022
30.08.2022
29.03. - 30.03.2022
16.08. - 17.08.2022
setIT basic

06.04. - 08.04.2022
21.06. - 23.06.2022
27.09. - 29.09.2022
15.11. - 17.11.2022
21.06. - 23.11.2022
setIT professional

21.05. - 23.05.2022
10.09. - 11.09.2022
15.09. - 17.09.2022
15.11. - 17.11.2022
IT Security

31.05. - 02.06.2022
29.11. - 01.12.2022
IT Security

31.05. - 02.06.2022
29.11. - 01.12.2022
IEC 60870-5-103/ IEC 60870-5-104

04.05.2022
24.08.2022
IEC 60870-5-103/ IEC 60870-5-104

04.05.2022
23.08.2022
Stay safe with the 2G rule (as of Feb. 2022)

Participation in the seminar is possible if the 2G rule (vaccinated or recovered) is observed:

- Vaccinated: Official vaccination certificate in the sense of § No2. SchAusnahm V3 (last required single vaccination is older than 14 days).

- Recovered: Proof of recovery in the sense of § No2. SchAusnahm V5 (positive PCR test result at least 21 days and maximum 6 months ago).
Did you know...?

Tips and tricks in setIT

setIT

setIT Config Compare

The new SAE Config Compare option compares the current configuration with the project status on the PC. With this configuration comparison tool you can easily see the changes in the configurations.

SNMP Agent

SNMP stands for Simple Network Management Protocol and is a protocol for managing and monitoring network elements. Our system also offers the SNMP agent. If the agent is activated, the corresponding MIB file can be downloaded.

Setting under: Services / SNMP Agent / Button MIB file export

Security by Default

If a project is relaunched or converted, certain security-relevant settings are queried in the new setIT V7. In the project root you can adapt this according to your needs and activate or deactivate individual settings. Of course it is also possible to set a new standard here.

Adjust the safety settings under Project root / General

QR code on the station

There is a QR code on most of our assemblies. If you scan this, you will receive further information and the possibility to download the operating instructions.

Online diagnosis

As projects and network structures become increasingly complex, it is often necessary to run diagnostic tools directly on the components involved.

The tools compiled here under Network Analysis can be used to eliminate connectivity problems and detect faulty configurations.

The following tools can be selected: IPsec Log - Syslog - Ping - Ifconfig - Route Traceroute - Firewall - SAD (severity association database) - SPD (severity policy database). Selectable only with online connected station under:

Context menu / Online diagnostics / Network analysis

LACROIX group

LACROIX grows

American company FIRSTRONIC becomes part of LACROIX.

LACROIX secured a majority stake in FIRSTRONIC in the USA at the end of 2021. LACROIX is thus on the right track to achieve its 2025 LEADERSHIP strategic plan, which is focused, among other things, on international development, particularly in the United States and Germany.

FIRSTRONIC is an EMS (Electronics Manufacturing Services) provider to very large customers, primarily in the automotive, industrial and healthcare sectors in North America. The company has two manufacturing locations in Michigan, USA and Mexico, with a team of nearly 1,300 people. Driven by strong growth, the company expects 2021 revenues to reach nearly $140 million and EBITDA to exceed 9%. LACROIX now holds 62% of the company.

In addition, LACROIX intends to continue its roadmap, including new international acquisitions.

Listed on the French Stock Exchange since 1992 (WKN: 792665), LACROIX now has a market capitalization of almost 200 million euros.
I pack my case... to identify of hotspots in the local network

Intelligent nodes

However, the steady increase in feed-in power from renewable energy sources and the change in energy consumption behavior, for example due to the advance of e-mobility, have changed the classic planning model and the technology of electrical energy supply. These influences largely affect the low-voltage grid. Critical operating conditions and overloads can occur there, as the classically planned networks were not laid out for this.

Secondary unit stations are increasingly becoming intelligent nodes. They perform tasks ranging from fault detection with fault location and power quality analysis to complete remote control or even automated disconnection point relocation. However, not all local network stations can be completely retrofitted, as the costs must be in relation to the benefits. Stadtwerke Kempen has therefore developed an interesting solution and presented it at the SAE Expert Days in 2021: A mobile measuring case for low-voltage measurements.

In total, there are over 300 local network stations in the network of the municipal utility. A global rollout of stationary LV metering for all stations would not make economic sense and would not be feasible in terms of organizational effort. The new mobile low-voltage network measurement kit enables Stadtwerke Kempen to identify „hotspots“ in the network and thus to detect strategically important local network stations in order to subsequently set up stationary low-voltage measurement with SAE technology only at these „hotspots“.

The heart of the case at Stadtwerke Kempen is an FW-5-GATE-4G with three PM-1-R modules (for Rogowski coil). The advantage of the SAE technology is the existing interfaces for direct connection to the control system via IEC -104 and LTE. The measuring interval is four weeks with monitoring of the transformer load and the individual feeders. In Kempen, there are 5-9 low-voltage feeders per transformer station. Some „hotspots“ were discovered that can lead to overvoltage or undervoltage in the network, in particular in connection with driving factors of electromobility (registration of wallboxes) and PV systems. This process will be repeated annually, in order to recognize long-term developments and to be able to retrofit stationary LV measurements if required.

New product development: mobile telecontrol case

We are now using the example of Stadtwerke Kempen as an opportunity to develop a standardized solution. Product management is already examining various concepts and collecting requirements. Our goal is to develop a supplementary product that is versatile and flexible in use and meets the needs of our customers’ different systems and plants - thereby creating real added value.

The mobile telecontrol case is not only intended for temporary low-voltage measurements in local network or distribution substations to support you in the detection and analysis of anomalies in operation, but also in other mobile or stationary systems where temporary telecontrol monitoring is required. In addition, the mobile telecontrol case is intended to help with the planning and validation of structural actions and as a support during commissioning by means of measuring units.

A basic product is envisaged, which can be adapted to the requirements of a wide range of applications by means of specific options. Our product portfolio also includes various communication options, such as 4G LTE or 450 MHz.

You want to operate the telecontrol case completely autonomously? In this case, it is possible to select VPN infrastructure for the telecontrol case as an option.

Do you have ideas and specific applications in mind that involve special requirements? Then you are welcome to participate actively in our product development process at: Innovation@sae-it.de

This allows us to react even more directly to your requirements.

We would like to present the mobile telecontrol case to you at the E-world in June.
Our FW-5-GATE telecontrol device passed the mechanical tests during full operation over all commissioned partial tests. We were even able to exceed the standard requirements.

Vibration test, according to standard EN 60255-21-1

<table>
<thead>
<tr>
<th>Norm class 2 (operation):</th>
<th>Out test:</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.075 mm deflection</td>
<td>0.35 mm deflection</td>
</tr>
<tr>
<td>1 g acceleration,</td>
<td>1 g acceleration,</td>
</tr>
<tr>
<td>10-150 Hz</td>
<td>9-200 Hz</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Norm class 1 (transport):</th>
<th>Our test:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 g acceleration,</td>
<td>1 g acceleration</td>
</tr>
<tr>
<td>10-150 Hz, switched off</td>
<td>9-200 Hz, with error-free RS485/LAN communication with remote station</td>
</tr>
</tbody>
</table>

Shock test, according to standard EN 60255-21-2

<table>
<thead>
<tr>
<th>Norm class 1 (operation):</th>
<th>Out test:</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 g acceleration</td>
<td>5 g acceleration</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Norm class 1 (transport):</th>
<th>Out test:</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 g acceleration,</td>
<td>15 g acceleration</td>
</tr>
<tr>
<td>switched off</td>
<td>in operation, with error-free RS485/LAN communication with remote station</td>
</tr>
</tbody>
</table>

All tests were carried out successfully on all three axes (X, Y, Z).
1,500 m² more space
Manufacturing relocated in record time

A few kilometers away in Cologne-Ossendorf, our new, modern production site was inaugurated in late 2021. It is 1,462.5 m²! That’s the size of about 10 tennis courts and is how much space we are gaining with our new hall. A logistical top performance was therefore required for the move, which was perfectly implemented by our colleagues from the plant engineering department in cooperation with the relocation service provider Gebr. Roggendorf GmbH.

All in all, 18 colleagues and 25 truckloads of machinery and material were moved. Among the machines were not only „lightweights“, but also a real „hunk“ weighing 2.5 tons. This is our automatic drilling machine, which now has its own room in the new hall. Parts of the administration team have also moved. The offices are located in a row directly at the entrance area and the colleagues have a nice daily view of the production progress in the new hall from large glass doors. We are pleased that the entire relocation process could be completed before the end of 2021. On behalf of the entire team, we asked Steffen Chawanetz, Head of Plant Engineering, and Emrah Sirca, Plant Engineering Work Scheduler, about their impressions of the move.

How did the move go?

You immediately notice the team spirit here, and the colleagues understand each other blindly, because they answer unanimously: „Our big goal was to have everything completed by Christmas and we finished more than a month early“ with the exception of a few exterior signs, which cannot be installed until spring due to the weather, everything else has been completed and is ready for use.

What is the layout in the new hall?

A lot of „brain power“ went into the planning. After all, the processes in the new hall should run as optimally as possible and represent an improvement. „In cabinet construction, we now have much shorter distances. We obtain the production parts directly from our own warehouse and can go straight into machining, and all on one floor. There are actually no idle or waiting times now. We have become much more flexible,“ explains Steffen Chawanetz.

A new process for material flow was developed in plant engineering. All work steps, from planning to the tested control cabinet, are carried out with almost no loss of time. „We have much more space than at the old location, but at the same time we were able to reduce the work paths enormously,“

In addition, the workflows are clearly structured and it is already apparent that we are achieving significantly higher productivity as a result,“ explains Emrah Sirca, one of the people who came up with the ideas for the new process.

What were the biggest challenges?

The biggest challenges were already faced before the move. The conceptual planning, the layout and the positioning of the workstations in the hall took a lot of time before the move could finally begin on the deadline. „Expectations were high,“ recalls Steffen Chawanetz, „after all, plant construction had to remain productive and downtimes had to be kept to a minimum. Unplug the machine, move it over, plug it in - unfortunately, it wasn’t that simple. Due to the short time available and the very limited availability of external tradesmen,“ a high level of personal contribution from the department was required. But here, too, it became clear that we can rely on our colleagues. With plenty of good ideas and a helping hand, we managed to ensure that plant construction did not have to be stopped at any time. In addition, our colleague Heidi Werner in particular did a great job and commissioned excellent external service providers who could also be fully relied upon.

What has improved because of the move?

Emrah Sirca gets straight to the point: „The old plant construction site served us faithfully, but it could no longer withstand the demands of modern production in all areas. Now we have much more space, clear production paths, high ceilings, more brightness, new offices and a new common room with a kitchen. We also now have many logistical advantages with two truck loading ramps. Our logistics partners can thus load and unload the goods safely and quickly.“

What impressed you the most?

There is again great unanimity in their response: „How much you can rely on your colleagues. Everyone really pulled together on this major project and we couldn’t have done it without each and every one of us.“ Emrah Sirca adds: „I’ve been with SAE for 10 years now and it’s impressive how the company has grown in that time. I think it’s good to be able to actively contribute to improvements. The development is great to see and makes you a little proud.“
What is our goal?

The main focus is on two things: Firstly, the remote download of a configuration. As a rule, this is carried out individually per station. The other is the remote replacement of the base system. This is usually applicable for many stations at the same time. Our goal is to enable our customers to perform software updates on a large number of remote stations without much effort.

SAE update server
Patch and device management

Thanks to the cooperation with LACROIX Impulse, we will soon be able to offer our customers an update server for centralized patch management. Configuration updates and troubleshooting will then be possible centrally on many telecontrol stations at the same time.

Patch management is an important measure in our IT and system maintenance. Simply explained, it is about fixing errors and vulnerabilities through corrections (patches). These updates for our software and remote control devices are used to resolve issues found after release. A good patch management process can protect the customer’s environment from cyber-attacks and keep an IT environment running smoothly and without downtime. It can also help keep software running at maximum performance.

Product news

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Centralized patch management

In close cooperation with our sister company Impulse (part of the LACROIX Group since 2021) we are developing an update server that will provide the following services:

- Set up an automatic update process
- Convenient selection option: create groups by selecting any individual stations/devices. In addition, a time-controlled update can be scheduled.
- Automatic execution of the update procedure
- System recovery in case of faulty update
- Status display of the stations/devices: Are these already updated or ready for update?

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Examples of selection options/selection criteria/filters

- Product type
- CPU type
- Hardware release of the CPU
- setIT version
- Commissioning date
- Serial number
- Loaded base system
- setIT project | name
New employees
The team continues to grow

Another record year - also in terms of new hires. With a total of 18 new colleagues in various departments, our company grew more strongly in 2021 than ever before. There are now well over one hundred employees working at the two SAE sites in Cologne-Pesch and Cologne-Ossendorf.

The year 2021 got off to a good start in January with the arrival of two new colleagues, Nick Milde in plant engineering department and Luca Johnen as a development engineer in our hardware department.

Mr. Johnen is a trained electronics technician for devices and systems and a state-certified technician for electrical engineering. He brings valuable experience to SAE through his previous work as laboratory manager of an accredited calibration laboratory in Cologne.

With four new employees, there have been major changes in the marketing department around Marketing Director Matthias Schuster.

Mr. Kauffmann holds a Master of Business Administration (MBA) in the Netherlands with a focus on marketing and covers the complete spectrum from print to event and online marketing. He looks back on more than 15 years of professional experience in B2B and industrial goods marketing.

Mr. Hughes is a native of the United Kingdom and our expert in international marketing. He has a bachelor in foreign languages and has been working in the field of international marketing for almost 15 years. With his focus on search engine optimization (SEO) and digital marketing for B2B companies, he will support us in expanding our international business.

The internal sales team has been strengthened by a new colleague in the order processing department. Marcel Braun has many years of experience in export, customs and logistics with well-known international companies. He has a degree in economics and has been our new specialist for export and international logistics since the first of February.

There were also numerous new additions in plant engineering for the new site in Cologne-Ossendorf. David Polaczy started on March 1st, followed by Can Aydin in September, while the next colleague, Seyyed-hadi Mousavi, arrived a month later. He is a mechatronics technician and supports the colleagues at the automatic drilling machine in the area of mechanics and in the construction of control cabinets.

In the software department, we were able to welcome Miriam Schumacher as a development engineer in March. In October, Xue Lui also joined us as a developer. Both will further strengthen the department and complement it well with their extensive knowledge.

Ms. Sarah Moujtahid followed in November. She is a trained hotel manager and qualified geographer, and worked in various industries as team assistant and management assistant before moving to SAE.
Her work in a medium-sized event and promotion agency in Cologne had a formative influence on her. She will contribute her organizational experience to our plant engineering department at the new location in Cologne-Ossendorf as a team assistant, primarily for planning.

Mr. Diego Ochoa started in June in the support department as “International technical support Specialist” and supports the team of Christian Timm. Another addition to this team is Julien Mideck, who started working as warehouse logistics specialist in November.

Katrin Heinemann started in the IT department in October. She has a degree in business administration and in recent years has worked as a project manager in the web development department. In recent years, she has increasingly turned to agile project management methods and trained as a Scrum Master and Product Owner. She has led and built project management teams and trained organizations in agile methods. This is exactly the strength she can bring to her primary area of responsibility at SAE. The implementation of our new CRM and later also the ERP system.

There were two reinforcements in the Accounting & Controlling division. David Wolf took up his position as Finance and Accounting Manager in Finance on June 15th. Mr. Wolf has a Bachelor of Finance and has already worked for well-known companies in logistics and IT services.

Mr. Wolf takes over the financial administrative tasks from Mr. Joachim Schuster and strengthens the focus on controlling.

Ms. Julia Gurevich then followed in October and worked her way into the topics of financial accounting and bookkeeping, in order to take over the duties of Simone Schulte this year. Ms. Schulte will go into a well-deserved retirement after almost 40 years at SAE.

We wish all new colleagues a good start!

LACROIX Events

**SAE at Enlit in Milan**

Cooperation appearance together with LACROIX Impulse

Enlit is a series of energy events that brings together industry experts to present solutions to the most pressing energy-related issues. SAE exhibited for the first time at the event in Milan in November 2021, in cooperation with LACROIX Impulse. Despite difficult conditions due to the corona pandemic, very good discussions were held and new promising contacts were made.

Besides the joint project of SAE and Impulse the „SAE update server“ (see page 21), the main topics were our application examples in the field of smart grid. Other possible applications of our telecontrol technology for gas and rail were also of interest.

The next European edition of Enlit will be in Frankfurt, Germany, November 29-December 1, 2022, with SAE as a visitor and possibly also as an exhibitor.

We wish all new colleagues a good start!

**Temporary Anniversaries 2021**

The success of our company stands and falls with our employees. Even in a stormy and uncertain year, they succeeded in implementing our projects successfully thanks to strong team spirit and professional expertise. We would therefore like to congratulate and thank all our colleagues who celebrated an anniversary in 2021:

- **35 years since 1986**
  - Heidi Werner
  - Jürgen Venhaus

- **25 years since 1996**
  - Jörg Schroeder
  - Oliver Callegari

- **10 years since 2001**
  - Daniel Tschanne
  - Jens Hecht
  - Roman Wirch
Within the SAE range, advice and support are just as important as the quality of our products. That is why we provide comprehensive services before and after sales to ensure that every customer receives the equipment and software services that are optimally suited to their project and can use them reliably over a long period of time.

Our service department is an important factor in keeping this promise. It has become apparent that our service department is constantly fielding questions, so we would like to provide the appropriate answers with our new FAQ series.

Our first topic is Modbus coupling:

Communication to a Modbus device does not work. The Modbus station has a red „X“ in the setIT view.

Possible causes:
- The polarity of the leads is reversed; the various manufacturers do not always agree on the designation of the „A / B“ connections.
- The baud rate / data format are set differently; these must always be identical.
- The Master / Slave - setting is wrong: If the Modbus partner is „Master“, the interface of the telecontrol station must be set to „Slave“.

The Modbus station has a red tick in the setIT view.

Cause:
- The telecontrol station reads or writes registers that are not present in the Modbus station. The Modbus station acknowledges this negatively.

The Modbus station has a yellow tick in the setIT view, but it keeps changing to a red „X“.

Possible causes:
- The scan times of the RS485 interfaces do not match each other
- If the telecontrol station is master, the blanking time and subsequent blanking time should be set to 0 ms.
- Incorrect cable type; the cable must be twisted in pairs and shielded.
- Missing terminating resistor (termination) at the end of the cable (120 ... 180 Ohm). Note: SAE telecontrol devices have the resistor already installed / activated.

Important tool for troubleshooting: Interface monitor

This can be activated under the menu item „Diagnostics“ for each parameterized interface. The „TxD“ line shows the data sent by the remote terminal. In the „RxD“ line you will find the data of the remote station. Characters displayed in red are faulty (telegram collision, interference on the line, etc.).

Useful Tip

If the telecontrol station is master, the „Active timeout“ on the interface should be set to approx. 300 ms.

Data query 2022

Spring cleaning!

setIT Updates, newsletters, SAE News, surveys, security alerts, etc. Again and again we receive feedback that we do not reach you properly. However, it is our aim to inform you in the best possible way. That’s why we are cleaning up our data and coming back to you with a data request during the year. We would like to know if your data is still up to date and what information you would like to receive in the future. A new CRM system is being implemented to help us with the collection. We need your consent to compare the data, otherwise we will have to delete the data after a transition period. In an info-mail you will have the possibility to selectively tick which information should be sent to you in the future.

Any other service questions?

Werner Wenzel and his service and support team will be happy to help you. Please contact our Repair & Service department: 0221/59808-55 or info@sae-it.de