

Technical article, published in: open automation (5/2019)

Switchgear manufacturer undergoes digital transformation



**“Systems solutions with
Wireless expertise”**

Stefan Schmearsal

steute Technologies is known as an expert for safe switchgear in complex and demanding applications. But over the last few years the company has also grown to become a systems provider. Today's customers can profit from complete solutions which range from sensors via Gateways to integration in ERP systems. In an interview, Stefan Schmearsal, Acting Partner at steute, gives insights into the market, his own solutions and business strategies, as well as the challenges steute will face in the future.



Stefan Schmersal, Acting Partner at steute since 2003, always stays true to his guiding principle in life: "Never stop starting; never start stopping"

What is now steute Technologies GmbH & Co. KG historically dates back to 1961, when the company was founded in Bad Oeynhausen as steute Schaltgerätebau Rose & Sölken KG. In 1995, steute then became part of the Schmersal Group, from which it broke away in 2003 to be managed by Stefan Schmersal as the sole Acting Partner. Since then, the company has steadily been sharpening its profile, adapting to changing market requirements and seeking out new directions.

S. Schmersal explains his initial strategy as follows: "At the beginning it was important for us to find our own profile and to distinguish ourselves from the competition, which at that time was focused primarily on machine safety." This strategy

led, firstly, to an increased concentration on the medical sector, which the company had been supplying with products since the 1990s. Secondly, the Wireless expertise at steute was strengthened, benefiting both medical and industrial customers.

The steute Wireless expertise dates back to the early 2000s. "Back then we heard about an interesting, self-sufficient wireless technology which was finding increasing acceptance in building automation applications. With a focus on mechanical and plant engineering applications, we then developed our own 'sWave' wireless technology using the 868-MHz or 915-MHz and the 2.4-GHz-ISM frequency bands. Customers can now buy nearly all of our switches either with or without a cable."

Steady adaptation process

steute has long positioned itself in the marketplace as an expert for safe switchgear in complex and demanding applications. Around 380 employees worldwide are currently helping the company to achieve this mission. "When we started in 2003 as an independent company, our turnover was approx. €12m – today it is fast approaching €60m. This shows us that we are on the right path", S. Schmersal says. The steute business is currently divided into four units: Automation, Wireless, Extreme and Meditec. Last year, the company heralded its transformation from a manufacturer of components to a provider of solutions by changing its name from steute Schaltgeräte to steute Technologies. S. Schmersal: "This trend, where companies are shifting from being suppliers of components to providers of systems can be observed throughout the industry", and he goes on to say: "Users are no longer just interested in components – whatever the brand. Nearly all manufacturers in the marketplace are now able to deliver good quality." He believes that it is far more important to provide customers facing complex problems with complete solutions, and to assist them every step of the way as their partner of choice. "In our case, what we provide now goes way beyond a simple switch or sensor. The status data within a closed application or the communicated information relevant to the application in question all have to be evaluated, transmitted and efficiently managed in the subsequent processes."

With this approach, S. Schmersal has steered his company onto a course of digital transformation. "We live in challenging times: advancing digitalisation is changing entire industries and branches;



The company headquarters of steute Technologies are in Löhne

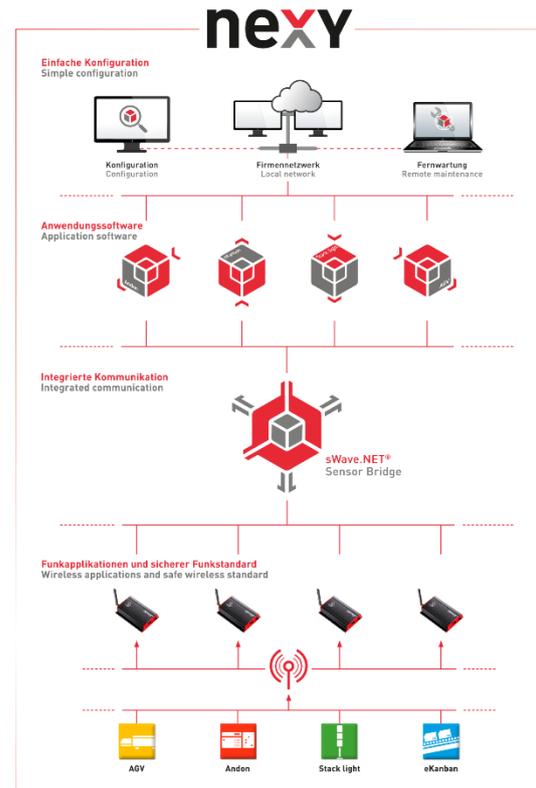
business models are increasingly being called into question and demanding of companies operating in the marketplace that they continually examine their own approach. This is also affecting steute considerably." Not only the will to be innovative is crucial, but also the power to be innovative, regarding both product development and adaptation to customer requirements. The same is true for internal processes and procedures. "These days, disruption has far exceeded being a fashionable concept; instead it has become a routine element of responsible management", the company owner says. He goes on to point out that the term '4.0' or 'Industrial Internet of Things (IIoT)', which has become such a buzzword in the last few years, has now gone beyond the digitalised world of business. "Today we tend to speak more of digitalised products, processes and procedures and their integration. And in our company we have made this topic a top priority."

S. Schmersal adds that the ratio of electronic products to purely mechanical products at steute has increased considerably: "Nearly all devices in our product range now contain electronic sub-assemblies." This is a logical development. "Automated factories are based on digitalised processes and require products

which can be integrated in complex control systems. The networking of plants and processes can only function if the products integrated within that control network can communicate with each other, exchanging and forwarding operational and status data. Here our wireless technology provides the basis – not only in the industrial, but also in the medical field."

New brand created especially for (intra)logistics

Important industrial branches which steute targets for its solutions include mechanical and production equipment, the foodstuffs industry, transport systems and the ever-growing logistics market. Intralogistics has been identified as a branch with great potential, making the LogiMAT fair very important for the steute Wireless experts. At this year's Spring fair, steute once again presented its overall concept for Wireless solutions and additionally used this event as a springboard to promote its new brand: nexy, the network solution for wireless communication in intralogistics. This brand name encompasses all the hard and software components required for the acquisition, transmission and management of sensor data and their integration in the Industrial Internet of Things. The focus is on energy-efficient wireless transmission and evaluation of sensor data. "The word 'nexy' comprises the letters 'ne' for the network(s) involved, the letter 'x' representing as downward and upward arrows the transfer of data between the steute network and the customer IT, and the letter 'y' for connectivity and availability within the entire system", S. Schmersal explains. It is based on the underlying steute 'sWave.NET' technology. Via Access Points and a Sensor Bridge - an easily



Under the new brand name "nexy", steute sells hard and software solutions for the acquisition, transmission and management of sensor data with integration in the IIoT. The focus is on energy-efficient wireless transmission and sensor data evaluation.

configurable middleware – uninterrupted communication between the sensors and the company IT is facilitated.

S. Schmersal cites as target projects intralogistics applications in highly flexible assembly or manufacturing sites which include e.g. Kanban replenishment of components or sub-assemblies at workstations. "Sensor signals transmitted by wireless technology automatically trigger the next process steps in materials or distribution warehouses, for example the necessary replenishment of materials at a workstation or the transport of assembled parts from one workstation to the next using an automated guided vehicle (AGV).

The data and information thus generated are evaluated, processed and passed on to superordinate networks by Gateways which are integrated in the system."

steute already has a whole series of reference customers using its complete approach. A particular highlight here is a manufacturer of luxury cars which has chosen to equip its factory with an intralogistics solution from steute .

The next step, already underway, is steute opening its nexy platform for other wireless technologies and providers of hardware components. For example, sensors from third-party manufacturers can be fitted with a wireless module and integrated in the steute network. This considerably opens up the range of use and the possibilities for expansion.

In this context the question arises of which advantages nexy or sWave.NET have over other open wireless technologies, such as Narrowband IoT or 'LoRaWAN'. "That is not so easy", says S. Schmersal. "With wireless technologies it is always necessary to look at the specific application. Our wireless technology 'sWave.NET' is especially well suited to intralogistics applications, for example. The best known Low-Power-WAN wireless technologies, in contrast, are more suited to other IIoT applications, such as Smart City or Smart Metering. In these applications it is usually smaller quantities of data which are transmitted at longer intervals and/or over greater distances", he informs us. In addition, the application scenarios favoured by steute customers tend to involve a high number of sensors, sometimes as many as 1000-2000, within a relatively small space. "Our wireless protocol is optimised for such cases and can do justice to the high demands

prevailing here, regarding both availability and power consumption", S. Schmersal goes on to explain. Here the power consumption remains low even with frequent use, firstly because of low-energy signal transmission and secondly because of the sleep mode which is automatically activated during downtimes. "In addition, 'sWave.NET' is compatible with other wireless technologies in the same industrial environment, thus complying with the demand for good coexistence." He sums up: "Against this background, the field of intralogistics materials supply, materials transport and wireless-based communication – we are thinking here of so-called 'Andon' communication – seemed an ideal application environment for our 'sWave.NET' technology, and so we optimised it especially for this purpose."

Another question arises in conjunction with the complete steute solution, which goes as far as integration in the company ERP system: Which cloud strategy is pursued at the moment, and will steute maybe have its own cloud strategy in the future? S. Schmersal: "We already guarantee connections to the cloud services of major providers via standard interfaces such as Rest API or http Notifications. Here our Gateway serves as a 'data forwarder'. Our Gateway software, the Sensor Bridge already mentioned, can also be operated both on our own hardware and on the servers of our customers, as well as in any cloud." Experience has shown, however, that customers in most current application scenarios still prefer to restrict themselves to communication within closed networks. "For this reason, it does not yet appear sensible to build up our own cloud solution for collecting and processing data", concludes S. Schmersal. He also believes it

is difficult to compete in this sector with established solutions. "This topic is therefore not – or at least not yet – something we are considering", he explains.

Integrated operating theatre

As mentioned earlier, steute has become an established provider of solutions not only in the industrial, but also in the medical field. "Medical equipment has become another important business area for us, responsible for a large part of our current overall turnover", S. Schmersal reports. Looking back at the outset, he remembers: "Our greatest competitors at the time were not other switchgear manufacturers, but manufacturers of medical devices who developed and produced their own foot controls." Here, too, wireless expertise has become an important factor enabling steute to become an innovative partner.

Referring to the situation today, S. Schmersal says: "Of our controls used in medical devices for diagnostics and treatment, more than 60 % are now equipped with our own wireless technology, developed especially for this purpose. And the ratio of wireless to cabled devices is increasing all the time." As he reports from his own experience, staff are now demanding cable-free devices across nearly all medical disciplines. "Cables are potential tripping hazards in operating theatres and restrict freedom of movement, and as such need to be eliminated." The challenges here are considerable: "Our switching devices serve as human-machine interfaces and sometimes need to fulfil up to 20 different functions, transmitting not only digital, but also analogue signals to control systems."



At the Medica 2018, steute presented wireless user interfaces which are ready for SDC (Service-oriented Device Connectivity) for the first time



The integrated OR: a single user interface for multiple medical devices and peripheral systems

As examples he mentions ophthalmological cataract surgery or complex surgical microscopes. In addition, there has been a concerted move in this field towards digitalisation. "The so-called hybrid operating theatre has been the inspiration here – we are concerned with connecting and integrating all devices used in the course of an operation, enabling them to be controlled by one central user interface. Last but not least, integration will also optimise, in other words shorten, the so-called 'skin-to-skin time'. This means the time which elapses during surgery from cutting the skin open to closing it again, as well as the time between one operation and the next", S. Schmersal explains.

steute is a founding member of 'OR.NET', an association aimed at achieving open integration of medical devices in

the OR, regardless of manufacturer. At the DMEA 2019, 'OR.NET' presented the new 'Service-oriented Device Connectivity' (SDC) standard. It is aimed at the networking of medical devices from different manufacturers which can then all be controlled via a single user interface. The advantages of integrating multiple medical devices in the OR via a joint user interface include the fact that the surgeon can concentrate better on the surgery at hand. In addition, communication between the devices will improve processes in the OR: all relevant information can be displayed and processed for all to see. steute has already designed its latest wireless user interfaces in readiness for SDC.

Generally speaking, the medical field makes different demands on wireless solutions than the industrial field. S. Schmersal: "Here, too, safety and availability requirements are high, but the difference is that in addition to redundant, bidirectional and rapid signal transfer, specific signal evaluation is also required, further increasing the software element inside these controls."

Qualified staff

The same trend can also be observed in the industrial field, however. Here, too, software is becoming increasingly important. This poses an additional challenge for many companies who now have to find and recruit software experts – in an age of underavailability on the job market. "Expertise is a raw material which is in short supply", S. Schmersal knows. "We are trying to master this challenge in two different ways." The first is via cooperation with various software providers who already have expertise in the relevant

areas, and the second is via systematic expansion of the software expertise available inside steute. "We work with the relevant faculties of local universities and polytechnics, giving degree students the chance to implement their theoretical knowledge in practical applications. Our software developers also use online learning platforms, for example 'Udacity', in order to expand or refine their specialist knowledge."

Outlook

Overall, S. Schmersal sees his company as well placed for the future. Even though there are first signs of a general economic downturn, this has not yet affected business at steute. "The percentage increase in incoming orders compared with last year is still in double figures", the businessman tells us. In this context he draws attention once again to both the wide spread of his company and its focus on growing branches of industry. "The current demographic shift will continue to benefit the medical field over the coming years. And optimisation of factory processes will remain in the foreground for the industrial field for the foreseeable future. And we can provide solutions for both." Asked about technological trends which steute can observe in the marketplace, S. Schmersal names Machine Learning and 5G. "Fundamentally, we are working hard to prepare our products and systems solutions to ensure they are fit for the next stage of industrial automation. The delayed development of fast 5G networks is still posing obstacles to the implementation of certain IIoT applications, however, just as electronic components still need to be upgraded for use in such fast networks", he says. But he sees his company as well

equipped for what the future will bring, including these technological trends and challenges. "At the same time, we are open to adapting our company profile to suit new developments in the digitalised and networked processes of industrial automation. We view ourselves as

competent providers of services for our customers." Thus describes S. Schmersal the direction that he intends to continue steering his company in the years to come. His guiding principle in life: "Never stop starting; never start stopping."

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