

: FOCUS GLOBAL SOLUTION PROVIDER



LOCAL PRESENCE, GLOBAL NETWORK

FIND THE RIGHT SOLUTION WITH SICK



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INNOVATIVE SENSOR SOLUTIONS ADVICE – AROUND THE GLOBE



Dear Readers,

Customers all over the world have relied on our broad product portfolio for decades. Our high level of technological expertise enables us to offer intelligent sensors for virtually every application. Based on your requirements, we work enthusiastically to develop innovative products and systems which are also particularly rugged and reliable. Our innovations provide intelligent, efficient, and precise solutions for a multitude of tasks in a huge range of industries. Thanks to their variable interfaces, our sensors can be used in any system environment, providing our customers with a high level of flexibility and investment security.

By working with a diverse range of applications, we have gained experience in many different technologies. Furthermore, we not only offer LifeTime Services covering the entire life cycle of a solution – from consultation and engineering to technical support and training – but also provide innovative logistics services with different levels of complexity. High availability and fast delivery times save our customers' time and money. Our aim is to be able to meet our customers' needs at all times – whether they are selecting a simple component from the standard portfolio or requesting a solution which requires implementation of a complex project on an international scale.

We speak the language of our customers around the world and are present in 88 countries – we have our own development and production facilities in every corner of the globe. From an individual product to a complete coordinated package, we consider the country-specific requirements of our customers and the local market conditions. Our expert specialists will be happy to advise you – right on your doorstep.

That's what we aim to show you in this issue.

A stylized, handwritten signature in blue ink, consisting of several loops and a final horizontal stroke.

Dr. Mats Gökstorp
Member of the Executive Board of SICK AG



NS AND EXPERT



Standardized final assembly

Vaillant uses RFID technology from SICK at its production sites in five European countries and China.



SICK ensures safety

Safety experts from SICK provide expert advice in over 80 countries.



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INTERVIEW WITH DR. MATS GÖKSTORP

CUSTOMER FOCUS ON A GLOBAL SCALE

It has been over 40 years since SICK began to extend its presence in the different parts of the world. This means that customers all over the world have direct access to SICK at all times – a key requirement when developing customer-specific solutions. SICKinsight spoke to Dr. Mats Gökstorp, Member of the Executive Board of SICK AG, about the challenges and benefits of collaborating within a global network.

SICKinsight: Dr. Gökstorp, in what respect is SICK a Global Solution Provider?

M. Gökstorp: We are a Global Solution Provider because we are present in all major markets around the world with products, systems, and services. We started our internationalization more

than 40 years ago by establishing local sales and service subsidiaries in individual countries around the world. Today, we have a presence in 88 countries around the world. In most of these countries, we are present with over 40 subsidiaries or with very competent partners. This means that we can re-

spond to our customers' needs in a global sense.

SICKinsight: What exactly does that mean?

M. Gökstorp: This is customer orientation on a global scale. Our sales and service

subsidiaries around the world cooperate strongly with each other in order to ensure that we meet our customers' needs and that we respond to our customers' requirements wherever they are in the world. For example, we have customers with headquarters in Germany and production plants all around the world. They want to get the same service wherever they are in the world. Other examples are customers with headquarters in the USA, engineering partners in Europe and production sites all over the world. True globalization means that we are able to respond to our customers' needs equally well – wherever the customers are present in the world – and to respond to our customers' networking needs.

SICKinsight: With more than 40,000 products, SICK offers the broadest portfolio in the industry. In what ways do the customers benefit from such a choice?

M. Gökstorp: We are proficient in a great number of technologies. This is why we usually are able to offer the best solution to the customers rather than providing just one solution that does not entirely fit the application. SICK develops customer-specific solutions and, with such a broad product range, the customers can be sure to get a high-quality solution. With our connectivity and high level of networking capability, we can work with any automation system provided and interface our sensor solution to any automation system. This means that our products can be used in all automation



systems. That provides our customers with a very high degree of flexibility and enables them also to work with their preferred automation system in combination with our sensor system.

SICKinsight: How does SICK embrace the diverse regional traditions and requirements that can be found in the different parts of the world?

M. Gökstorp: We have established Regional Product and Competence Centers with their own R&D and production in Europe, the Americas, and Asia Pacific – for example with an R&D in Singa-

pore and production in Malaysia, and in the US with an R&D and production in Minneapolis. The starting point was to make a development in the region for the region. That also means that we are locally present in any region with regional competence in the time zones where the customers are located and also with the local competence, with the same culture. That enables us to speak the language of our customers and ensures that our sales people and our application experts have the right skill set and the right competence to talk to the customers about their applications and their needs in their specific industries.

W4-3 miniature photoelectric sensor



G6 miniature photoelectric sensor



SureSense cylindrical photoelectric sensor



Local for local: Specifically optimized photoelectric sensors of proven quality from SICK, developed for the local markets and produced on-site in the regions – ensuring a maximum of fitting accuracy and short delivery times.

SICKinsight: What could a product specifically being designed according to the regional requirements look like?

M. Gökstorp: A very good example is the G6 photoelectric sensor, which we specified and defined based on the needs of the markets in this region of the Asian market and is manufactured in Malaysia. We also have a quite similar photoelectric sensor series for the American market, developed in Minneapolis, the H18 SureSense. The photoelectric sensor was developed in the US for the US market. It is specifically tuned to the needs of our North American customers and is also being produced in Minneapolis to ensure short lead times and the rapid availability of customer-specific solutions.

SICKinsight: SICK's comprehensive Life-Time Services complement the broad product range. What service range do they cover?

M. Gökstorp: We keep our customers' processes running around the whole life cycle of the products and systems we are providing. This means that – starting with consulting services – we can support the customers in the design phase of the solution accompanying and leading the complete project up to the acceptance as well as the mounting and commissioning. When this is done, we support the customers to keep their systems running with after-sales services and support processes. We can also do retrofits and upgrade a system to extend the lifetime of the system.

SICKinsight: Does SICK also offer training?

M. Gökstorp: Yes, during this whole cycle, we also provide training to ensure that also the customers' engineers and maintenance personnel understand our systems and solutions in the right way

so that they can provide the right local support too. In addition to that, we also have a strong offer within safety services and safety solutions, where we with our services can certify the machine safety solution for our customers so that they can rest assured and have a good night's sleep because they know that their machine is safe and that no accidents will occur. Finally, what we're also doing in terms of an ongoing support and productivity is that we provide services – even on a 24/7 basis – where we can continuously monitor the performance of our system remotely. We can proactively see if for some reason the performance is going down and then contact the customers and suggest proper maintenance in order to get the system back to its full performance. This is continuous performance monitoring. And we do that remotely. So we connect remotely to the customers' machines or plants and can provide a number of services in that way.



“True globalization means that we are able to respond to our customers’ needs equally well – wherever the customers are present in the world.”

Dr. Mats Gökstorp, Member of the Executive Board SICK AG



SICKinsight: In a globalized world, businesses and customers are also connected with each other via the World Wide Web. Today, online shopping provides an opportunity to customers to order and shop products very quickly and easily. What are the main characteristics of SICK’s online shop?

M. Gökstorp: With our very good search and selection functions, we want to help the customers find the right product corresponding to their needs. Customers can select products, accessories, documentation, and software and see the net price and delivery date for every product. Even complex orders can be submitted quickly via direct ordering. Moreover, users can create wish lists that they can save and share with someone else and easily make requests for quotation, ordering, and delivery tracking. With user accounts, customers can also create an overview of all of their quotations and orders, check their

status at any time, and even export them to their own systems. Previous orders can also be repeated easily.

SICKinsight: What are the benefits of these functions?

M. Gökstorp: According to this state-of-the-art online shopping concept, you can very easily move on from finding the right information, selecting the right products, putting them into a product basket, and very easily place the order with us. And then our logistics center is delivering the product or the product basket directly to the customers on time, in some regions even within 24 or 48 hours. Our online concept satisfies both the needs of design engineers and those of the procurement department of the purchaser – all the way from designing the new solution and selecting the right product for their system or machine to procurement of the products.

SICKinsight: But when it comes to providing a customer-specific system or solution rather than a product, there is always a higher degree of complexity involved. In what ways does SICK support the customers in designing a solution corresponding to their specific requirements?

M. Gökstorp: A number of products you can select in our online shop are based on the features of a standard solution. But many sensor solutions require very good consulting in order to ensure that we design the right solution. So, in order to define a customer-specific solution to solve applications in a customer-specific way, we as well as our customers put a high value on our personal consulting competence. Our sales people are very skilled sensor people that can consult the customers to choose the right solution. That is a high value. Sometimes we have an end user in Australia and a system



provider in the Netherlands, and they all want the specific solution developed by our system organization in Germany. In this case, we are also recognizing again the complexity in a globalized world. Consequently, the whole setup also requires a very strong international coordination. For that, we have the capability of managing this project internationally involving people and sites across three different countries and two different time zones.

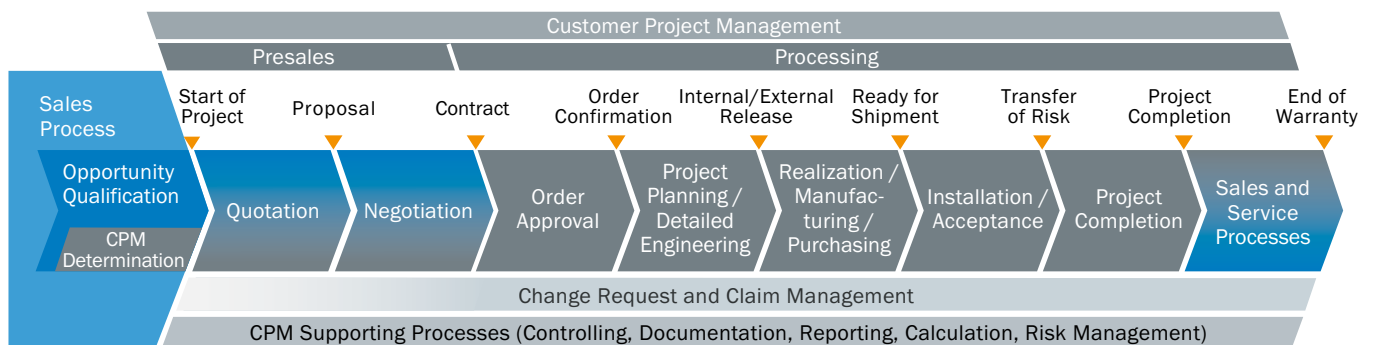
SICKinsight: This means that SICK also handles complex customer projects involving project partners from all over the world?

M. Gökstorp: Yes, exactly. Our industry specialists will always support our cus-

tomers in their design process and in their procurement process to help our customers make the right decision and find the right solution. In addition to that, we have our own qualified customer project managers who ensure the global coordination of our organization to meet the needs of the customer's organization and those of the customer project. Our customer project managers support our customers and make sure that we deliver the systems on time to fulfill the specified performers' real requirements and to meet the customers' specifications. For that, we have developed a specific customer project management process that we follow and which is a globally standardized process in the SICK Group. So wherever you are in the world, we

provide the same project management skills and the same project management process to our customers, which ensures that we serve our customers on a global scale with the same competences and in the same way regardless of where they approach us.

SICKinsight: Thank you very much for the interview.



SICK Sales and Customer Project Management (CPM) provide expert support with the coordination of all project phases right up to full commissioning of the systems on the customers' sites.



SICK's new distribution center in Buchholz, Germany.

SUSTAINABLE IMPROVEMENTS TO DELIVERY PERFORMANCE

More customer satisfaction

Delivery capability and reliability are both fundamental contributors to customer satisfaction. SICK now has a new system which creates transparency throughout the entire delivery process chain by performing detailed analyses and assessments of customer orders and delivery data. As well as adhering to specified delivery dates (delivery reliability), the system is also capable of determining SICK's performance (delivery capability) by the customer's preferred deadline. It can even use additional key figures to measure both the average time taken to confirm a customer order and the number of date changes. What's more, it is also able to determine the details of various different types of order, such as standard, project, or repair projects, along with their individual requirements and processes. The system is even quick and intelligent enough to recognize where

action is required to implement further improvements.

When it comes to managing logistics tasks efficiently as order volumes continue to rise, automation is key at SICK's new distribution center in Buchholz, Germany. The comprehensive new concept incorporates a highly dynamic shuttle as well as workspaces which have been ergonomically designed for maximum process efficiency. Together, this combines to boost the performance of the distribution center by improving the dynamics and flexibility of the logistics processes.

Value Added Services

SICK is able to pass this added value on to its customers through the following value-added logistics services afforded by the new distribution center:

- Material presorting and repacking in line with requirements

- Aggregation of several orders per week into a single delivery
- Packaging goods into customers' own totes and shipping boxes
- Customer-specific labeling (for example, using printed customer logos, standardized symbols, bar codes, or customer-specific material numbers and text) (ro)





VAILLANT GROUP BANKS ON RFID TECHNOLOGY

PRODUCTION CONTROL AT THE RIGHT FREQUENCY

Increasingly, global networks are replacing closed value-added chains. The goal here is to achieve the best possible efficiency over the entire production and distribution path by means of gap-free data transparency. This is possible by using RFID technology (RFID = radio-frequency identification), which is defining the current trends in contemporary factory and logistics automation. This is how it works: A memory chip that can be identified via radio frequency is attached to an object. The data on the chip can be output and rewritten as required.

>> Using RFID technology brings numerous benefits. It accelerates logistics processes and automates identification procedures. The result: A clear reduction in the manual workflow steps that were previously required. Data acquisition is carried out flawlessly and also enables additional data to be recorded. In short, this results in enhanced process transparency overall. In factory automation, the required data is stored remotely on the object itself and provides up-to-date information about the steps being performed in the current production flow. This allows an increase in the number of variants and facilitates flexible design of production processes.

Vaillant Group: Production process management and track and trace with RFID

The Vaillant Group is now using RFID technology for standardized final assembly of its heating technology products at its production sites, which are spread across five European countries and China.

RFU63x RFID read/write devices from SICK used for final assembly of the turboTEC/5

Final assembly of 16 variants and four different output versions (20, 24, 28, and 36 kW) of the turboTEC/5 non-condensing boiler for the Chinese market takes place on an assembly line in the Remscheid factory in Germany. RFU63x RFID read/write devices by SICK are used to continuously collect and read data during the final assembly process.

When production begins, the unique identification code of the RFID tag attached to the assembly trolley is read and linked with the serial number of the item to be manufactured in a database. From this point onward, this combination of RFID code and serial number acts as a reference variable for controlling the assembly process. Thanks to automatic detection of the RFID code, it is possible to monitor the status of the process and access the relevant process parameters at any time, and the results gathered



Vaillant uses RFID technology from SICK at its production sites.

during the assembly process can easily be assigned to the product. The product to be manufactured follows its preset path through the manufacturing process using RFID technology from SICK. The person responsible on site receives clear information about the further processing of the component at each of the workstations along the assembly line.

The line consists of several assembly and test stations. These include stations for screwing together the outer housing and the heating shaft, for assembling the hydraulic group and the cable harness, and for assembling the gas pipelines, burner, and switch cabinet. There are also a number of preassembly, testing, and calibration processes, as well as the packaging of the fully assembled devices.

All of the process steps are standardized. The necessary steps in the workflow process are intuitively displayed to the worker on the workstation screens. Steps in the assembly process that need to be performed manually by the operator are supported by poka-yoke devices and pick-by-light systems. From the number and sequence of screws, the correct torque, and even the detection of com-

ponent bar codes using hand-held scanners, a whole range of variant-dependent assembly sequences and the parameters for those sequences, as well as any results, are stored in a central database. Reliable identification of the transponder on the trolley provides information on which variant is awaiting assembly or testing and which of the numerous, variant-dependent assembly and testing sequences apply. This is done step by step, meaning the operators cannot miss anything out; nor can they repeat the same step twice. Once the assembly process has been successfully completed, the trolley is automatically registered as inactive, and is ready for the next assembly process. If a step in the assembly process has not been fully completed, the trolley will not be permitted to enter the next station. The assembly processes and communication with the RFID read/write device by SICK are managed and controlled using the "AMS+" assembly management software, developed in-house by the Vaillant Group. Across all Vaillant Group factories, this software is used to control, configure, and monitor around 300 test benches and over 50 assembly lines online. All systems are connected via a central data storage system.



The RFU63x RFID read/write device from SICK reads the RFID tag mounted on the assembly trolley.

Connecting and forwarding data with the right technology

“The SICK system helps us to link up data and forward it from one station to the next,” explains Christian Kron, Production Test Development Manager at the Vaillant Group. The company launched its project to improve the efficiency of its final assembly processes back in 2007, when the use of manual scanners to detect the trolley identification numbers required for process control and monitoring was leading to unacceptably long PSDI times, especially in the case of high-runner products, several hundreds of thousands of which are manufactured every year.

“Operators no longer need to pick up a scanner for identification, because they are automatically tracked throughout the process by the RFID technology. When operators arrive at the next workstation, they can immediately view information on the next step required in the working process. They can start work right away and are intuitively guided through the

process. That is an improvement – without a doubt,” explains Kron, highlighting the benefits of the RFID solution. “When scanners are used, operators arrive at the station, pick up the scanner, perform the scan, and only then does the information they need appear on screen.” Alongside the increased level of automation, the RFID system also contributes to improved process monitoring, which resulted in a zero error rate for “A” errors in the Remscheid factory last year.

Vaillant’s entire product range tracked throughout production using RFID technology from SICK

The Vaillant Group has now rolled out the RFID technology from SICK worldwide. “We like the convenience of it,” summarizes Kron. Also convenient is the fact that SICK has global radio equipment type approvals for the RFU63x RFID read/write devices. The Vaillant Group is now considering further applications using RFID in future, as there are plenty of other ways to make use of the transponders. On top of providing links between

systems across all sites, from goods receipt to logistics, preventive maintenance and servicing are already available as an option in the self-developed “AMS+” assembly management software. Increasing quality requirements and the desire for resource efficiency necessitate autonomous fault detection through comprehensive product and production data. In the area of quality control, goods in the production process and supply chain must be reliably and uniquely identifiable so that they can support efficient automated control.

Simple integration – intelligence included: RFU63x RFID read/write devices

The RFU63x by SICK marks the launch of a new generation of RFID read/write devices for UHF that are suitable for industrial use. Thanks to its smart process logic, the RFU63x provides an autonomous solution for applications in the production, logistics, and traffic sectors. It can also be used as a stand-alone system. Integrated functions such as data processing and filtering ensure an optimum and stable reading performance. SICK’s 4Dpro technology allows the RFU63x to be easily and economically integrated into all major industrial networks. Parameters can be transferred to other devices via microSD memory cards using the cloning backup system. This significantly reduces the time required for replacing and setting up devices. A freely configurable LED signal can provide the user with additional information on, for example, read results or diagnostics data.

The SOPAS configuration tool is used for configuration, and application-specific software can be integrated into the RFU63x. Up to three external antennas can be connected on top of the integrated antenna, and switching inputs, for connecting a trigger photoelectric sensor, for example, can be flexibly configured in order to control certain actions. Moreover, unrestricted outputs can be used to display read results or to control actuators, for example.

As the RFU63x works with 4Dpro technology, it provides a whole range of integrated interfaces for connecting to host systems such as Ethernet, RS-232, RS-422, RS-485, CAN, CANopen, etc. In addition, SICK's developers have also taken into account system configuration or diagnostics via Ethernet, RS-232, or USB, for example. Non-integrated fieldbuses such as PROFIBUS or EtherCAT® can be addressed via external gateways, and function blocks are also available in the RFU63x for facilitating integration into these fieldbuses. For the purposes of completing typical tasks, the RFU63x has a smart set of useful, integrated functions for data filtering and processing, making it much easier to adapt the device to common tasks.

Modular and future-proof

Due to its modular design, the RFU63x can be used flexibly and at minimal expense, and thanks to its 4Dpro compatibility, it can also be used in combination with neighboring technologies. This means standard accessories can be used across all of the different technologies, while transponders can be selected in accordance with the application in question. In addition, firmware updates allow the system to adapt to future developments, ensuring a high level of investment security.

The high impetus in global markets produces an ever-increasing competitive pressure. More stringent standards, shorter and shorter product life cycles, and individual customer requests place high demands on data transparency within a company. Communication via RFID devices and remote intelligence are the foundations needed to increase efficiency in production and logistics, improve the monitoring and management of processes, and thus improve transparency. Under Industry 4.0, we will see new intelligent networking of factories. This will help us to achieve the level of flexibility needed in logistics processes, both within a single factory and across an entire chain of production sites. As a result, we will be able to bridge the gap

between productivity and the demand for customized solutions.

Intelligent sensor technology plays a key role in this trend: Sensors from SICK are able to detect objects and conditions, providing users with a wealth of data. Our sensors' computing power and intel-

ligence make it possible to trace relationships between all of this data. They increase transparency, which in turn forms the basis for improving flexibility. (as)



More about the customer at:
www.vaillant.com

Radio equipment type approvals

Version: Long range
Frequency band: UHF (860 to 960 MHz)
RFID standard: EPCglobal UHF Class 1 Generation 2, ISO/IEC 18000-6 C



Read/write device with integrated antenna Scanning range: type 5 m^{*)}

	Europe	RFU630-13100
	South Africa	
	Saudi Arabia	
	USA	RFU630-13101
	Canada	
	Mexico	
	Australia	RFU630-13102
	India	RFU630-13103
	Brazil	RFU630-13104
	China	RFU630-13105
	Japan	RFU630-13106
	Russia	RFU630-13108
	Korea	RFU630-13110
	Indonesia	RFU630-13112

Scanning range: type 2 m^{*)}

	Japan	RFU630-13107
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Read/write device without integrated antenna Scanning range: type 5 m^{*)}

	Europe	RFU630-04100
	USA	RFU630-04101
	Canada	
	Australia	RFU630-04102
	China	RFU630-04105
	Japan	RFU630-04106
	Russia	RFU630-04108
	Singapore	RFU630-04108

^{*)} Depending on transponder used and ambient conditions.

HAZARDOUS AREA PROTECTION FOR TIRE CURING MACHINES AT CONTINENTAL

EFFICIENT AND SAFE – THROUGHOUT THE ENTIRE WORLD

A flexible system for hazardous area protection on tire curing machines ensures optimum safety, efficiency, and ergonomics for the tire manufacturer Continental. As part of an international project, Continental is working with experts from SICK to improve safety on its tire curing machines, which are in use at 16 locations around the world. The main aim of the project is to equip the presses with a uniform, global safety concept while achieving optimum ergonomics and flexibility.

>> The starting point for the project at Continental was a comprehensive risk assessment carried out on a range of typical tire curing machines. Right from the start, Continental worked with an international team to increase acceptance of the solution throughout the entire company. Employees from SICK Safety Services and Solutions also carried out an external risk assessment. This provided Continental with a second opinion and verified its own findings.

Safety concept based on a risk assessment

The findings were then used to create a safety concept. This took into account all the mechanical risks at the front of the press as well as those at the sides, rear,

and underneath. Alongside high safety requirements, efficiency and the approval of the machine operators were crucial for Continental. A high level of flexibility when operating neighboring machines and best use of available space were key factors for this application. The integration of all safety components of a machine with short shutdown times and quick commissioning were also important. SICK set to work on these requirements and developed what was then a unique solution for Continental.

Laser scanner monitors four protective fields simultaneously

At the front of the press, where the workers operate the press and the most important hazardous area protection is re-

quired, the S3000 safety laser scanner and Flexi Soft safety controller from SICK monitor up to four protective fields at the same time.

Just one safety laser scanner covers up to four protective fields simultaneously, i.e., without protective field switching and thus without additional response times and without unnecessarily shutting down neighboring machines. This means that four dangerous movements, either from a machine or from neighboring system parts, can be covered.

This ensures maximum flexibility when operating adjacent machines and production processes – with minimum hardware requirements.



“The safety of the presses is particularly important to us. Which is why we need a partner that we can rely on to deliver the necessary services and machine acceptance processes throughout the world.”

Timo Kuss, Global Project Manager and Plant Engineering Manager at Continental in Aachen

SICK supports Continental during global rollout

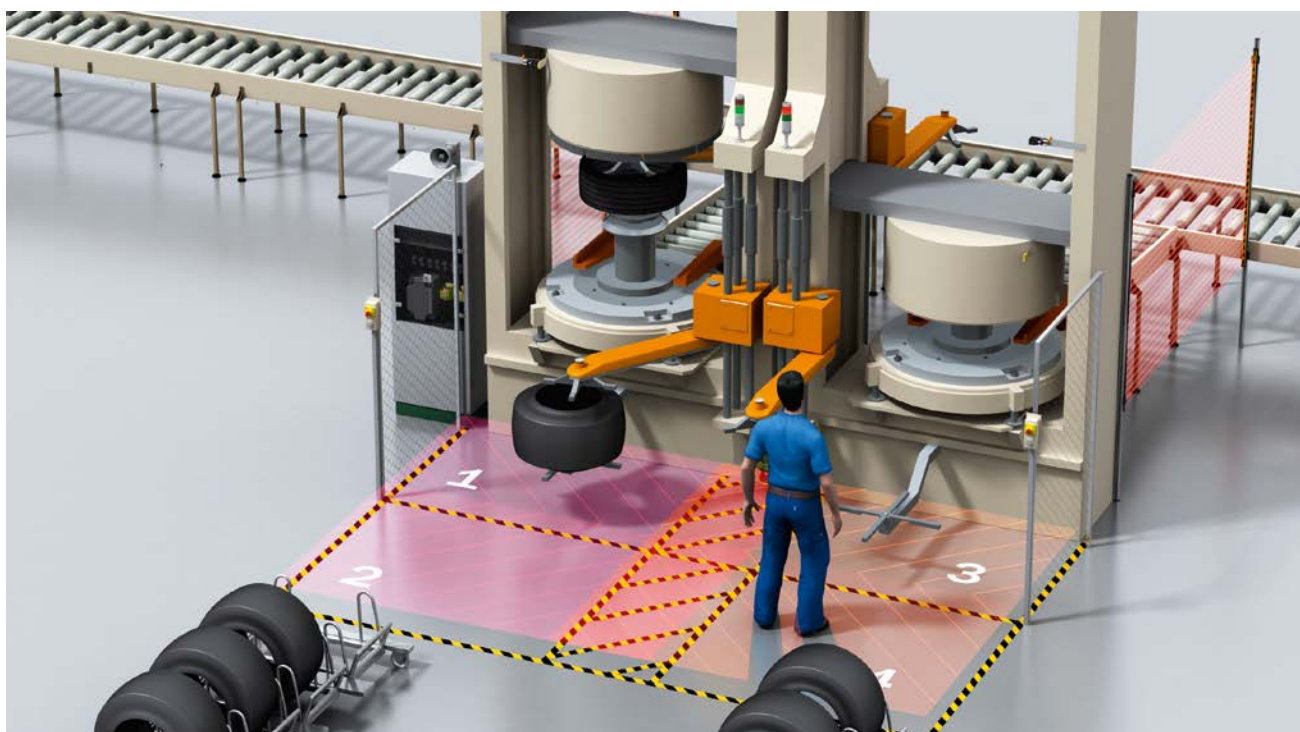
Even the best safety concept is worthless if incorrectly implemented. And it was precisely the implementation, together with a high level of global operational safety, which was crucial for Continental right from the start. "The safety of the presses is particularly important to us," emphasizes Timo Kuss, Global Project Manager and Plant Engineering Manager at Continental in Aachen, Germany. "Which is why we need a partner that we can rely on to deliver the necessary services and machine acceptance processes throughout the world."

SICK is currently providing step-by-step support for the safety concept rollout in up to 16 countries around the world in parallel. This involves on-site kickoff meetings and supplementary risk assessments at the respective production sites to identify specific regional safety risks, along with support during the implementation of pilot projects, supply of essential safety components, safety system commissioning, and finally the safety acceptance according to the specification. This is taken care of by certified safety specialists from SICK who are on hand on site around the world.

And that is not all: Implementing and reliably operating the safety concept means that comprehensive documentation is required. SICK also has the drive and skills to assist the tire manufacturer in this regard. The team from SICK is drawing up operating instructions for the safety aspect of the tire curing machines and creating maintenance instructions for Continental – in the relevant languages of course.



More about the customer at:
www.continentaltire.com



The S3000 safety laser scanner and the Flexi Soft safety controller monitor up to four protective fields on the tire curing machine at the same time.

TAILORED SOLUTIONS – EXPERTISE AND QUALITY WORLDWIDE

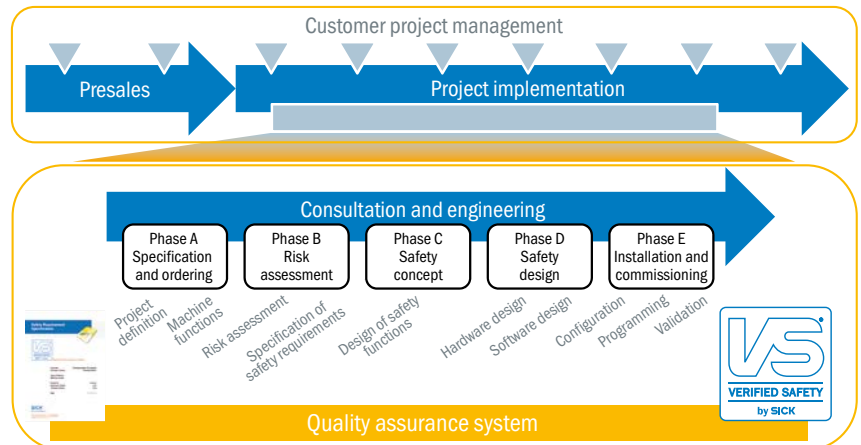
Comprehensive advice – with the same high quality wherever you are in the world – and tailored solutions: These are just two of the benefits offered by SICK's network of 140 safety experts in over 80 countries. As well as large global companies like Continental, this network also helps many small companies wanting to concentrate on their core area of expertise – automation.

Local knowledge, global network

The 140 safety experts from SICK are based in the subsidiaries around the world and in the competence centers in Europe, Asia, North America and South America. Local knowledge is a crucial advantage when it comes to finding the right regional solution. Companies benefit from the extensive network if, for example, they operate globally distributed production sites or export their machines to other countries. There is a huge range of services available in the field of machine safety: From risk assessment and the preparation of generic safety concepts to the specific selection of components, their integration into the system, and programming or configuration. To prove that such measures also meet the necessary requirements, safety experts from SICK validate the protective functions and support the conformity assessment for the machine or system.

VERIFIED SAFETY: Tested safety at all levels

As part of the overall customer project management process, the VERIFIED SAFETY quality assurance system is a SICK standard for customer-specific safety solutions. Projects such as the retrofitting of protective measures can therefore be carried out at 16 production plants in 14 countries to the same standard as one retrofitting process on a single production line in a single country. In the first instance, of course, defined processes and competency management are used to guarantee that risk minimization requirements are met. Furthermore, standards are set using a



globally uniform approach: Whether in China, the USA, Italy or any other country in which SICK operates, the documentation of results is carried out in a globally uniform manner and, of course, with regard to the respective locally applicable standards and regulations in each case. Particularly in companies operating globally, this produces comparable results and a uniform overview – and not just internally. Generally speaking, multiple contractors and subcontractors tend to be involved in fitting out manufacturing plants. It is ideal if everyone is on the same page.

safetyPLUS® – safe machinery and more Safety as an added value – in terms of legal safeguards and functional safety. That is what safetyPlus® from SICK represents. Alongside practical selection guides, there is also useful information available on topical issues:

- White paper: “Design and selection of interlocking devices in accordance with EN ISO 14119”
- “Six steps to a safe machine” guidelines in various languages (versions for EU and North America)
- Training and seminar programs

 Additional information:
www.sick-safetyplus.com

Globally recognized and TÜV certified

Functional Safety Engineer (FS Engineer)

As an official course provider, SICK offers training to become a certified and internationally recognized FS Engineer in conjunction with TÜV Rheinland.

The training program is compliant with ISO 17024 and therefore guarantees neutral assessment and independent certification. The training is provided all over the world by specially trained safety experts from SICK.

Additional information:
www.tuvasi.com

SAFETY AT SEA – MARITIME EMISSION MONITORING WITH MARSIC

The MARSIC ship emission measuring device is certified in accordance with DNV GL. It ensures that reliable measured values are available and traceable in maritime emission control areas. When traveling within emission control areas, ships are required to use low-sulfur fuels. Alternatively, exhaust gas purification systems may be implemented to reduce the sulfur content. NO_x limit values are also defined for ship engine emissions. The exhaust gas purification results must be measured and documented. Anyone equipping a ship with state-of-the-art technology for exhaust gas purification and with a MARSIC measuring device will also satisfy all emission regulations in the long term. The MARSIC systems are certified for monitoring DeSO_x systems

according to MEPC.184(59) and DeNO_x systems according to MARPOL Annex VI. Ship operators and scrubber manufacturers can, therefore, be sure that they are on the right course in the long term. When switching fuels (from heavy oil to diesel), operators must also prove that they are compliant with emissions limits. In this case, MARSIC monitors the emissions simply and continuously to ensure compliance with the limits and to provide evidence of this compliance.

High level of operational safety through quick servicing – worldwide

With employees in more than 80 countries, the global SICK network ensures that servicing and spare parts are available around the globe and around the

clock. If maintenance or spare parts are required, technicians and service partners from SICK can be at the nearest port at short notice. Appropriate storage of spare parts in the service hubs along the main global shipping routes means that such parts can be provided very quickly when required. Alternatively, remote maintenance via the Meeting Point Router from SICK ensures that the MARSIC technology functions reliably and that the ship can continue on its journey. (tm)



Additional information:
www.sick.de/marsic

- Emission control areas
- Potential future emission control areas



Current regulations and guidelines:

- MARPOL Annex VI and NTC 2008 – MEPC.177(58)
- Guidelines for exhaust gas cleaning systems – MEPC.184(59)
- Guidelines for SCR reduction systems – MEPC.198(62)

THE PERFECT COMBINATION OF PROVEN SOLUTIONS

SYSTEMATIC APPROACH TO A COMPLETE SOLUTION

The ability to provide the right solution in virtually every industry all over the world requires a global presence, application knowledge, and a broad product portfolio. In an ideal scenario, all of these elements are incorporated into tailored complete solutions, which are then standardized, reproduced, and used in other areas. A global presence and efficient, comprehensive support are becoming more and more crucial in this regard.

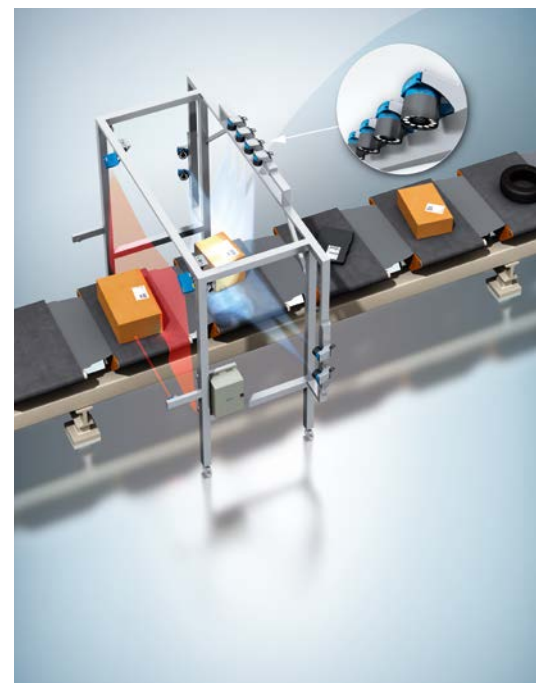
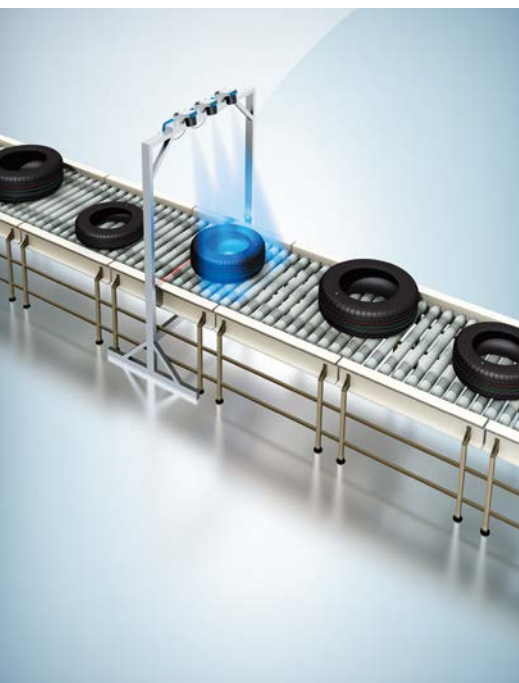
>> From process automation and factory automation to logistics automation: System solutions from SICK are based on widely used components, comprehensive application knowledge, and internationally available services. From standardized products to individual customer wishes, the on-site collaboration between clients, industry experts, and product specialists from SICK results in practicable, scalable solutions.

Lector65x System: Focusing on a huge range of applications

Based on the Lector65x image-based code reader, the track and trace system reliably identifies and decodes all common types of codes. In addition, the high-resolution images can also be used for video coding and OCR tasks. The type of camera (fixed or dynamic focus), the number of cameras, and the camera alignment are individually tailored to the application in

question by SICK's project managers – from reading the top side of parcels or tires to 5-sided reading of parcels or flight luggage. The Lector65x System can also be cleverly combined with other technologies such as ICR8xx line-scanning cameras, volume measurement systems, laser-based code readers, or weigh scales. The Lector65x System has a lot to offer – from a simple, cost-effective system to a tailored complete solution.

ONE SYSTEM SOLUTION – MANY APPLICATIONS: RELIABLE IDENTIFICATION AND TRACK AND TRACE FOR TIRES, FLIGHT LUGGAGE, OR PARCELS WITH THE Lector65x System





SCR bypass – reduce harmful emissions and much more besides

Modern power plants employ efficient flue gas cleaning systems. The “Selective Catalytic Reduction,” or SCR, method is used as a secondary measure to reduce nitrogen oxides. Thanks to the innovative SCR bypass measurement solution from SICK, modern power plants can now reduce more than just harmful emissions. Within the process itself, this measuring technique makes it possible to maximize catalyst lifetimes, minimize ammonia consumption, and obtain pure gypsum with minimum NH_3 content – ideal for further use.

The measurement solution consists of gas analyzers and flow meters from SICK. The GM32 in-situ UV gas analyzer measures the proportion of nitrogen oxide directly in the special bypass system cell. Air is used to keep the analyzer lens cool and free of dust. The measurement result enables the injection of ammonia to be regulated precisely, while the FLOWSIC100 volume flow measuring device measures the mass flow rate using ultrasound. The flue gas

is analyzed again at the SCR output. If nitrogen oxides are still present, more ammonia is added. If there is too much ammonia in the gas, the injected amount is reduced accordingly. The GM700 laser gas analyzer is an additional unit on the outlet skid that precisely measures the ammonia slip and moisture content.

One of the key innovative elements is the sampling system itself. A large number of sampling lances (usually eight), each with around four to eight sampling openings, are used to take a representative sample of the measurement gas along the entire cross section. As windrows often form, the measurement and control will not work correctly if the measurement is only taken at one point.

Less hazardous substances in the air: Power plants in China rely on solutions from SICK. Full report including video at:
www.sickinsight.com/power_plants

TIC Pro profiling systems – reliable vehicle classification, axle counting, and vehicle counting

The systems in the TIC Pro (Traffic Information Collector) product family have been in use for years across the different continents. They are used on roads to record information about vehicles, traffic flow, and traffic composition. The laser scanners scan the road up to 100 times per second. The system then uses this measurement data to generate a 3D model of each detected vehicle via the integrated controller. In a subsequent step, these models can be divided into up to 30 vehicle classes using classification algorithms. TIC Pro is automatically calibrated during flowing traffic and provides an integrated remote maintenance function. (tm)

Traffic Information Collector (TIC) analyzes vehicle data in the Liefkenshoek tunnel. Full report including video at:
www.sickinsight.com/traffic



THERE IS NOTHING IN THE AIR TONIGHT.

THIS IS **SICK**
Sensor Intelligence.



From power generation and cement production to waste treatment and the distribution of natural gas – the more complex a plant, the greater the demands on systems engineering and services. When it comes to monitoring emissions, evaluating gases for optimal process control, and ascertaining custody transfer measurements for pipelines, SICK is a step ahead in every segment of the industry. With complete solutions for gas analysis, dust measurement, and flow measurement that are perfectly tailored for each process environment. With superior equipment availability, easy operation, certified explosion protection, and robust measurement technology with long maintenance cycles. When it comes to finding a clean solution, the whole world takes measurements with SICK. We think that's intelligent. www.sick.com





MODERNIZATION OF GAS TERMINAL FOR DISTRIBUTION IN NORTH GERMANY

SICK METERING SYSTEMS STEPS ON THE GAS

Ultrasonic technology is an attractive option for measuring station operators, particularly when it comes to invoicing for gas levels which are subject to calibration requirements, and also for measuring flare gas. With its individual components and entire system solutions for use in measuring stations across the oil and gas industry, SICK's measuring technology really convinced as the best solution. In fact, advanced system projects are what SICK Metering Systems does best. The joint venture carried out one of these projects successfully in partnership with German SICK Vertriebs-GmbH at a major European gas supplier's gas terminal in East Frisia, Germany.

>> When it comes to “all things gas,” Germany and Norway have enjoyed a close and effective relationship for decades. Around 27 percent of Germany's natural gas consumption is transported to the country from oil and gas fields in the North Sea via receiving and processing plants. Meanwhile, natural gas from Norway is also one of the most important mainstays of the European energy supply.

Reliable measuring technology for the natural gas supply

The operator of the natural gas terminal in East Frisia has commissioned technology company The Linde Group to operate as general contractor in the renovation of the existing natural gas terminal, which is already 30 years old. As a system integrator with a range of services including product and system knowledge as well as project management and sup-

port, SICK Metering Systems makes a significant contribution to the renovation of the natural gas terminal. This in itself is a key stepping-stone to safeguarding the future of the natural gas supply for Germany and Europe from Norway.

The 440-kilometer “Norpipe” pipeline has been pumping natural gas from Norway to Emden, East Frisia, since 1977. Here the gas is prepared before being fed to the gas distribution network. This much-needed modernization of the measuring technology in the gas terminal represents an investment in the future of the gas supply. In the last two years alone, the consortium of several Norwegian energy companies has spent around 600 million euros on the expansion and modernization of this gas terminal. The terminal will be up and running at full capacity in 2016. Reliable measuring technology for recording gas volumes is

also essential for ensuring the natural gas energy supply.

Flow metering: The key to accurate billing

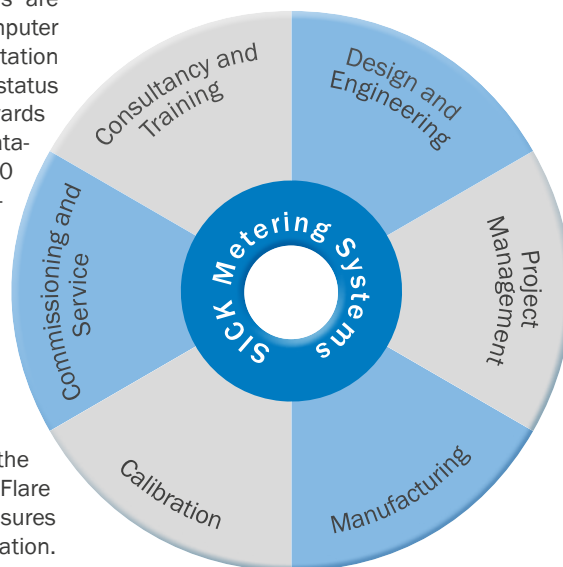
Measuring volume flow to invoice for gas levels which are subject to calibration requirements is absolutely essential from an economic perspective. SICK Metering Systems demonstrates that it is even possible to meet specific customer requirements within existing infrastructures. The outstanding flexibility of SICK Metering Systems really comes into its own when it comes to integrating information technology. The project planning phase provided the opportunity to both determine requirements and advise the measuring station users in Germany on the suitable devices and software.

In this project, the measuring station has five gas metering lines, each over 25 m in



in particular. All gas and energy levels for the individual measuring bars are displayed in a station control computer and summarized in reports. The station control computer monitors the status of the measuring station and forwards the account data to the central database in Norway. The FLOWSIC600 have been calibrated for this high-pressure application at EuroLoop in the Netherlands. The high-pressure calibration of a 25-meter measuring section such as this poses a real logistical challenge, but it is no problem at all for SICK and its established partners.

To monitor the emissions from the flare gases, the FLOWSIC100 Flare mass flow measuring device measures the mass flow in a 2-path configuration. This means that the measurement operation can still continue even if one of the two ultrasonic paths fails. The Flow-X flow computer also forms part of the system solution in this area too. (sh)



More about the customer at:
www.the-linde-group.com

length. In each of these measuring bars, the amount of gas is measured with the greatest precision using a FLOWSIC600 ultrasonic gas flow meter by SICK. Ensuring that the technologies in use are fail-safe is a fundamental concern of the measuring station users, who have extremely high requirements in this regard. For this reason, a second ultrasonic gas flow meter from another manufacturer was installed in series behind the FLOWSIC600 due to the difficulties involved in a direct flange-to-flange installation.

Customers in Germany and other European countries are billed based on energy levels rather than gas levels. These energy levels are calculated by SICK's Flow-X flow computer using the measured gas volume and energy content. A gas chromatograph calculates the energy content from the measured gas composition and the methane content

Natural gas flow measurement in Mexico with FLOWSIC600



As part of the "Los Ramones" project, Mexico plans to import natural gas from the USA through a 900 kilometer pipeline currently being constructed. The legal-for-trade FLOWSIC600 ultrasonic gas flow meter by SICK (gas flow meter and a check flow meter in one meter body) proves to be highly accurate and compact in design. Every day natural gas flows in great quantities through pipelines or into storage facilities. Precise gas quantity measurement is of the utmost importance, as even very small measurement errors could result in substantial economic loss. Challenging ambient measurement conditions such as moisture, ice, and cold, but also heat and desert sand place great demands on the measuring devices – all of this is no problem for the FLOWSIC600 that is both accurate and rugged. (ro)



FROM COMMISSIONING TO REMOTE MAINTENANCE

IN INCREASING DEMAND: WEB-BASED REMOTE SERVICES

The control station of a coal-fired power plant in Brazil receives an alarm signal. A gas analyzer is supposed to keep harmful emissions to a minimum, but at the moment it is not succeeding. The problem has to be rectified quickly – not only to avoid wasting valuable resources, but also to prevent the facility from being shut down due to official requirements. Thanks to web-based remote maintenance via Remote Services from SICK, the parameters of the facility in Brazil can be adjusted from Germany so operation can start up again. But the benefits of these services start earlier in the process – when customers are first developing an application solution and performing test runs.

>> Remote Services from SICK include support when commissioning facilities, remote maintenance, analysis of device data, transfer of new machine parameters, inspection of machine logbooks, elimination of errors, and verification of measurement data. All of these services are based on data which is supplied by intelligent sensors from SICK and can be

analyzed, verified, or further processed all over the world. What might sound modern to everyone else is practically a tradition for SICK. The field of process automation in particular has already been relying on remote maintenance for over ten years. It started in the 1990s via simple point-to-point connections and analog telephone lines, before continu-

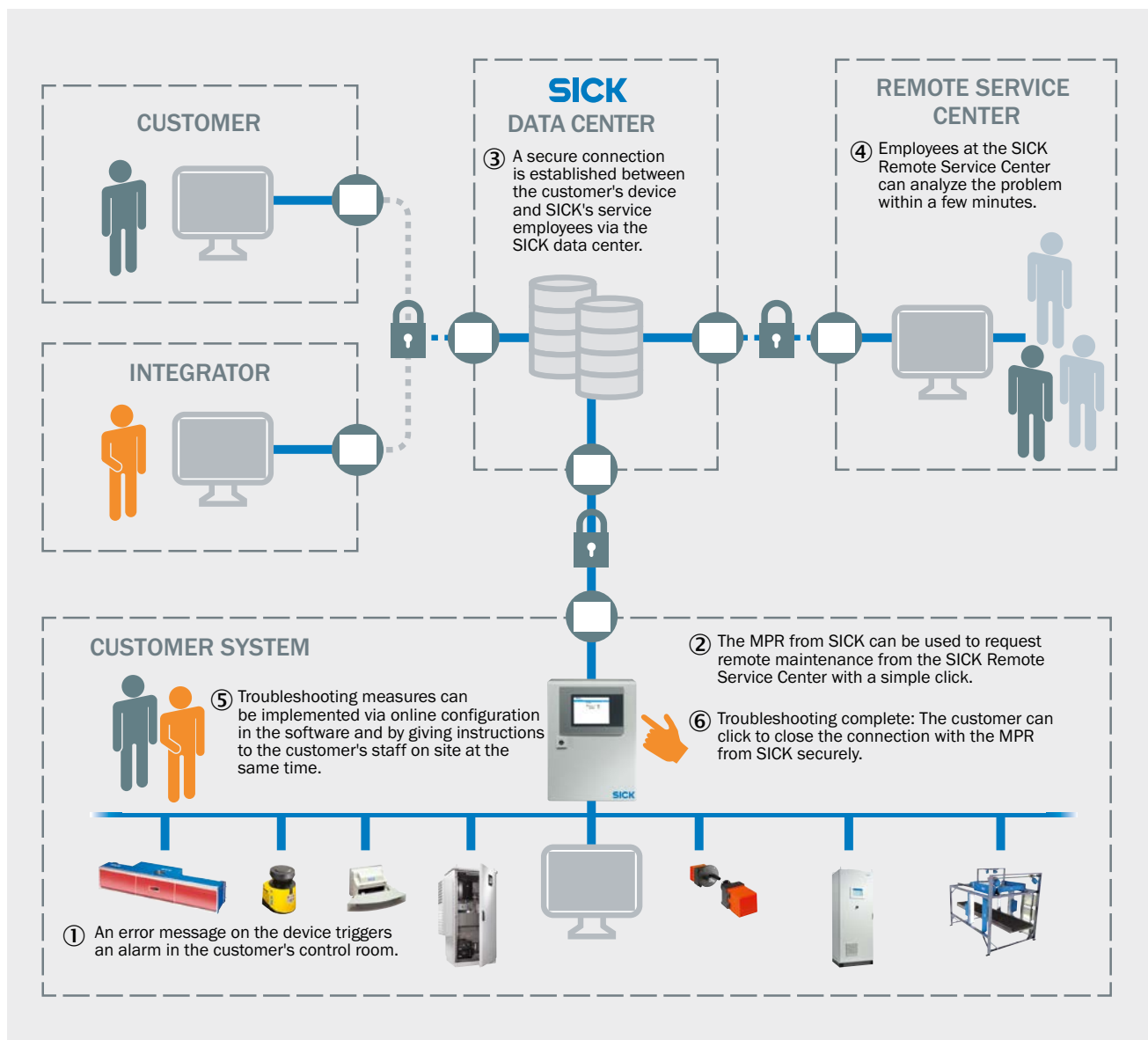
ing with basic, first-generation mobile modems. Since 2013, SICK has been taking care of its customers using its very own Remote Service platform via highly secure Internet connections or – if there are no broadband connections available on site, for example – mobile connections.

Data security is top priority

Only the user can establish the web-based connection with SICK, and the data channels used for the connection are highly encrypted in accordance with

HTTPS and SSH authentication standards. The SSH protocol ensures that the data is encrypted with 256-bit encryption while passing from the customer to the service technician, so external access to

the customer network is virtually impossible. In addition, all communication by service technicians is logged in the cloud to create further transparency.



Secure and flexible: The modular concept of the Remote Services enables customers and integrators to set up a secure remote dial-in.

From logistics automation to process automation – demand for Remote Services is growing

More and more systems are being fitted with a Meeting Point Router (MPR) from SICK as standard. The MPR functions as a firewall in the customer's machine network. As a remote gateway to the sensors, analyzers, PCs, or HMIs, it offers a secure and physical barrier between the networks. In the event of a fault, SICK's help desk can step in immediately via remote maintenance. SICK uses its own Remote Service platform to provide a secure connection to the Internet and its teleservice. It is flexible to configure, suitable for a wide range of customer requirements and networks, supports a variety of different protocols, and can be used with most SICK products from SICK.

Remote commissioning

As early as the initial commissioning stage, the ability to access a system remotely offers a distinct advantage. In

many cases, the first time that the full functionality of a new system can be tested under real production conditions is once it arrives on-site, as the software for controlling it with customer-specific settings, for example, is part of an existing on-site system. With Remote Services, specialists can then provide ongoing remote support throughout the commissioning process.

In the subsequent warranty period, the service technicians use the online machine logbooks to carry out further optimizations and gain immediate access in the event of problems. Even in the subsequent service phase, remote maintenance allows technicians to continually monitor the machine parameters and even provide troubleshooting advice. In addition to these resources, today's system operators expect instant access to technical drawings and spare parts lists for their systems via tele-service.

Service modules and packages for all requirements

With Remote Services, SICK provides on-line expert support during commissioning and during the subsequent operation of sensors and systems. Alongside support for commissioning and operation, the fields of application also include preventive maintenance, fault diagnosis, and consistent system documentation. To meet the varied needs of system operators, SICK Remote Services are available in three tiered and individually extendable service ranges.

Remote Services are part of the huge range of LifeTime Services available – industrial services offered by SICK to cover the entire life cycle of a system. (tm)



SERVICES FOR MACHINES AND SYSTEMS: SICK LifeTime Services

Our comprehensive and versatile LifeTime Services are the perfect addition to the comprehensive range of products from SICK. The services range from product-independent consulting to traditional product services.



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Safe and professional



Product and system support
Reliable, fast and on-site



Verification and optimization
Safe and regularly inspected



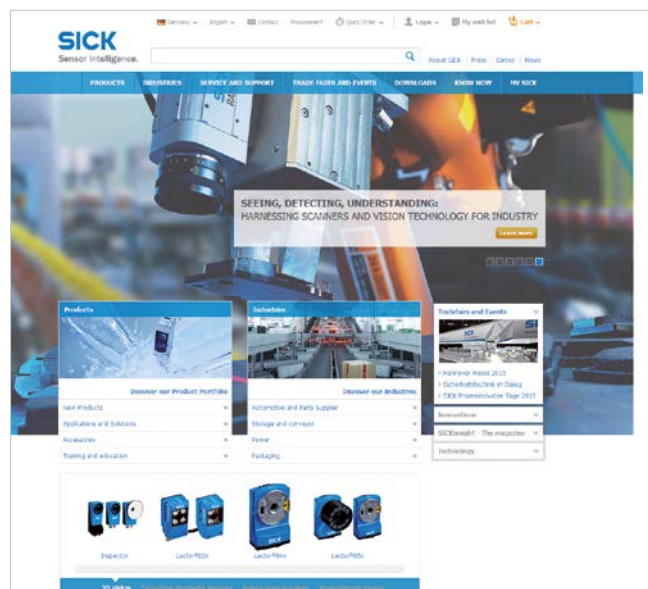
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