



CONNECTING WORLDS

Annual Report 2018

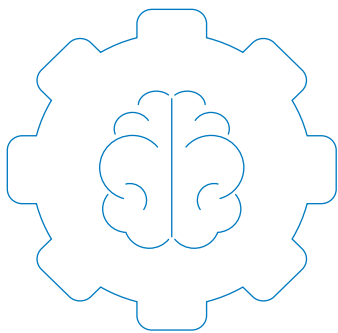
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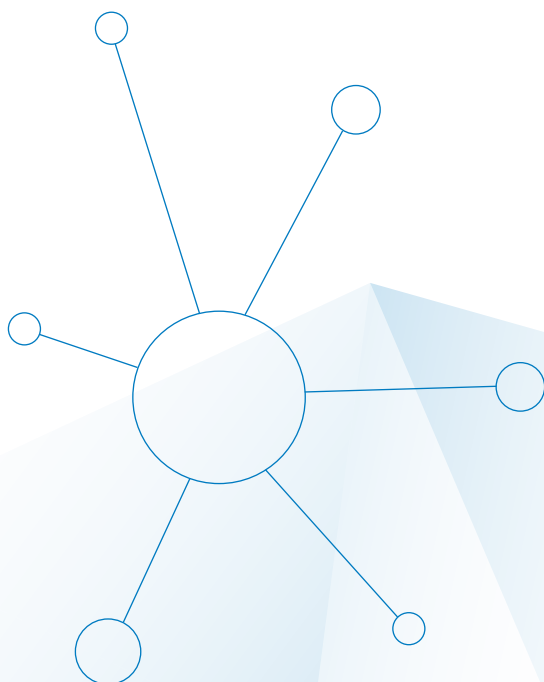
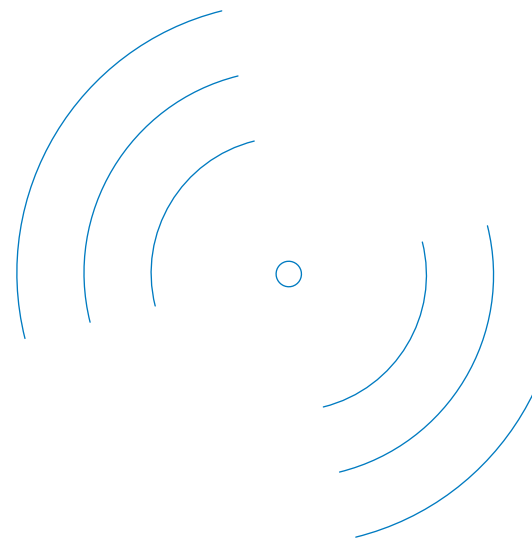
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CONNECTING WORLDS



At first glance, there is a clear separation between the world of human thought and action on the one hand and the technological world of sensors on the other. The Annual Report 2018 shows that the two worlds interact and makes these interactions visible. Whereby the focus is on the contribution that SICK and its partners make towards orchestrating the complex interactions between humans, machines, and data.



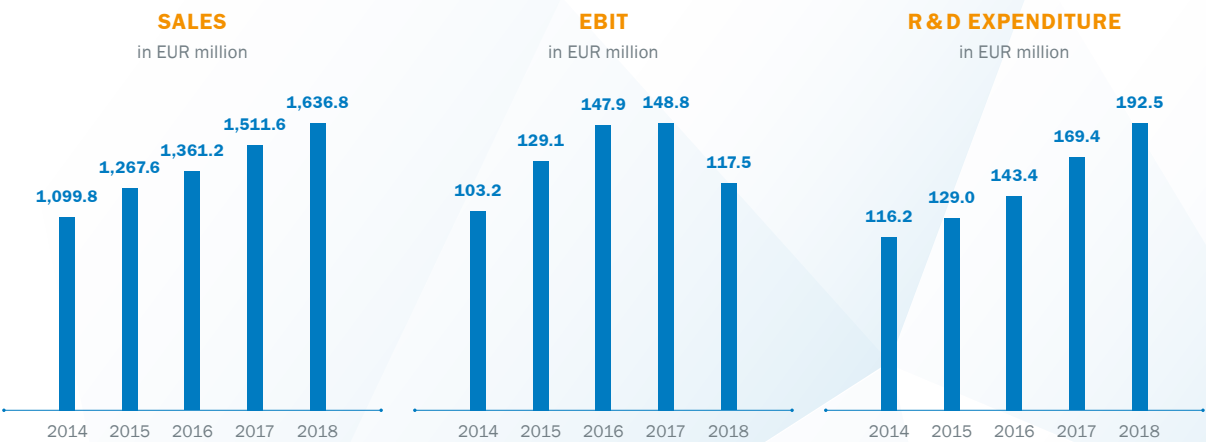
SICK AT A GLANCE

KEY FIGURES

		2014	2015	2016	2017	2018	Change in %
Sales	in EUR million	1,099.8	1,267.6	1,361.2	1,511.6	1,636.8	8.3
EBITDA	in EUR million	144.1	175.4	198.8	204.5	180.1	-11.9
EBIT	in EUR million	103.2	129.1	147.9	148.8	117.5	-21.0
Net income	in EUR million	69.8	90.8	104.0	104.3	81.7	-21.7
Cash flow	in EUR million	83.8	112.1	122.8	101.8	20.2	-80.1
Employees							
on December 31		6,957	7,417	8,044	8,809	9,737	10.5
annual average		6,820	7,239	7,806	8,486	9,345	10.1
trainees ¹		255	267	293	324	364	12.4
Personnel expenses	in EUR million	464.2	526.3	574.3	639.8	699.3	9.3
Investments ²	in EUR million	82.4	83.8	82.8	95.3	107.1	12.4
Depreciation	in EUR million	40.9	46.4	50.9	55.7	62.6	12.4
R&D expenditure	in EUR million	116.2	129.0	143.4	169.4	192.5	13.6
Total assets	in EUR million	762.9	862.9	950.1	1,066.2	1,265.7	18.7
Equity	in EUR million	374.6	451.8	522.0	584.4	635.6	8.8
Equity ratio	in %	49.1	52.4	54.9	54.8	50.2	
Net return on equity	in %	22.9	25.2	24.9	21.7	14.7	
ROCE	in %	19.1	21.1	21.8	19.5	12.5	
Net return on sales	in %	6.3	7.2	7.6	6.9	5.0	
Earnings per share	in EUR	2.66	3.47	3.97	3.98	3.12	-21.6

¹ Annual average.

² In property, plant and equipment and intangible assets.



OUR BUSINESS FIELDS



Factory automation The automotive and consumer goods industries, mechanical engineering, the electronics and solar industries, and drive technology are the target industries within the factory automation business field. Non-contact sensors, camera systems, encoders, and distance measurement systems all serve to control manufacturing, packaging, and assembly processes, to carry out quality assurance, and to ensure machine safety.



Logistics automation In the logistics automation business field, the focus is on airports, industrial vehicles, building management, building safety and security, ports, trade and distribution centers, courier, express, parcel and postal service providers, cranes, and the traffic sector. In all of these areas, SICK's sensors shape and optimize the entire logistics chain: Whether automating material flow processes or increasing the speed, efficiency, and reliability of sorting, picking, and warehousing processes.



Process automation Within the process automation business field, SICK delivers sensors, customized systems, and services for analysis and process measurement technology. SICK thus provides smart solutions for waste incineration plants, power, steel and cement plants, oil and gas industry applications, as well as for chemical and petrochemical plants and refineries. Together, these solutions make an important contribution to protecting our environment.

FOREWORD BY THE EXECUTIVE BOARD



DEAR SHAREHOLDERS, BUSINESS ASSOCIATES, EMPLOYEES, AND FRIENDS OF SICK,

What makes a successful company? Above all, a feeling for future developments and trends. And, without doubt, the ability to create the conditions in the present that will make it possible to exploit the opportunities of the future. How is this progressing here at SICK?

As far as the figures are concerned, it is clear: We have completed another successful year. We grew worldwide and were again able to book record values. Orders received exceeded those of the previous year by more than ten percent. Group sales rose by more than eight percent, with continuing high profitability. And this despite the challenging economic and political environment in which we are currently operating.

The world, particularly the world of automation, is going through a period of upheaval. Being successful in this environment, and above all remaining successful, requires farsightedness. Our thinking and actions are long-term and future-oriented. We consistently exploit our strong market position in classic industrial automation to shape the world of Industry 4.0. Which is why we continue to invest heavily in research and development. With evident success: Industry 4.0 is not just a marketing term for us, but lived reality. SICK ensures that many potentials of Industry 4.0 can already be tapped – with innovative solutions and services based on sensor data. Our customers and business associates profit from this, and so do we. While the factory of the future is merely discussed elsewhere, we are already using intelligent and digitally networked control systems for highly flexible and efficient production. The product solutions emerging from the start-up initiatives that we set up in the Group a year ago are on the way to market entry – and considerably quicker than originally planned. Our path, the interdisciplinary consolidation of the company's mature technological expertise and its combination with agile methods, is bearing fruit. We thus create more space for innovations at SICK. Innovations that open up new markets.

It is our innovative strength that provides continuous impetus for corporate growth. We believe that successful innovation requires far more than investment and corporate farsightedness. It needs visionary ideas. It needs the courage to try out new approaches, think laterally, and think ahead. And the courage to make mistakes, to fail, and to start again from the beginning. In short: It requires human creative thinking with all its strengths and weaknesses. Innovations are made by people. We therefore consider our employees to be the pillars of our future sustainability. Their great technological competence, combined with an inventive spirit, are principally responsible for SICK's lasting positive development. This has always been the case: Our company



Executive Board of SICK AG: Reinhard Bösl, Markus Vatter, Dr. Martin Krämer, Dr. Mats Gökstorp, Dr. Robert Bauer

founder, Dr. h. c. Erwin Sick, recognized the potential of linking optics and electronics earlier than anyone else and thus laid the foundation for the worldwide success of the SICK Group. All his inventions were also intended to increase the well-being of mankind and society.

Innovation has tradition at SICK. A tradition that we maintain every day in our work. For us, there is no conflict between humans, machines, and data. On the contrary, it is their interactions that actually create the basis for marketable innovations. We combine these worlds and thus generate added value for our customers, our business associates, our employees, and the company. We believe that innovation and success go hand in hand. This has been the case for more than 70 years and will remain so in the future.

Sincerely yours,

Dr. Robert Bauer
(Chairman)

Reinhard Bösl

Dr. Mats Gökstorp

Dr. Martin Krämer

Markus Vatter

REPORT BY THE SUPERVISORY BOARD

of SICK AG in accordance with Sec. 171 (2) AktG ("Aktiengesetz": German Stock Corporations Act)
on the fiscal year 2018



The SICK Group's fiscal year 2018 was characterized by investments in the future: The strategy of exploiting our technological foundation in industrial automation and our strong position in the market to exert a formative influence on the world of Industry 4.0 was consistently further pursued. Orders received and sales grew to new record levels, driven by success in existing business. Earnings are dampened by signs of overheating on the procurement side. Production downtime could only be prevented by means of considerable additional expense regarding material costs and inventory. The resultant additional costs, together with unfavorable currency effects, had a substantial impact on earnings. At the same time, the development of digital business models gathered pace through targeted investments in internal start-up initiatives. The Supervisory Board entirely supports the path undertaken by the company – the consolidation of existing internal expertise in teams operating in parallel to the present organization and letting these teams work on the most important future topics with agile methods – even if it leads to this fiscal year's earnings being burdened in addition to the operative challenges mentioned above. We believe that such a forward-looking investment policy is essential for successfully mastering the current and future upheavals in the automation industry. This profound technological foresight ideally positions the SICK Group to become one of the world's leading partners for implementing Industry 4.0.

Cooperation between Executive Board and Supervisory Board

During the fiscal year 2018, the Supervisory Board comprehensively and carefully performed all the duties incumbent upon it under the law, the articles of incorporation, and the rules of procedure. It provided regular advice to the Executive Board on running the company while continually monitoring and reviewing its management activities. Whereby particular attention was paid to the legality, regularity, expediency, and the economic efficiency of the group-wide management activities carried out by the Executive Board. The Supervisory Board discussed company organization with the Executive Board to assure itself of the performance capabilities of this organization. The Executive Board and the Supervisory Board also continuously coordinated the company's strategic alignment. The current status of strategic implementation was discussed at regular intervals. The Supervisory Board was directly involved in all Executive Board decisions of fundamental importance for the company.

Klaus M. Bukenberger,
Chairman of the Supervisory Board



The Executive Board notified the Supervisory Board – both verbally and in writing – promptly, comprehensively, and on a regular basis. The Supervisory Board was thus kept informed throughout about the planning, implementation of the strategy, the business situation and development of SICK AG and the Group – including the risk situation, risk management, and compliance. The Supervisory Board was also always informed about business of special significance for the company or the Group. Deviations in business development from the defined plans and targets were proactively communicated, and the reasons for these deviations were explained.

The subject matter and scope of the reports submitted by the Executive Board complied fully with the requirements stipulated by the Supervisory Board. In addition to the reports, the Supervisory Board had the Executive Board provide additional information. In particular, the Executive Board used Supervisory Board meetings to explain and answer any outstanding issues. The Supervisory Board examined the plausibility of the information provided by the Executive Board, critically assessing and challenging it where necessary. The Executive Board also always kept the Chairman of the Supervisory Board and the Chairman of the Audit Committee informed in detail about developments between meetings of the Supervisory Board and its committees. The Chairman of the Executive Board, in particular, held regular consultations with the Chairman of the Supervisory Board in order to discuss strategy, planning, the current business situation and development, including the risk situation, risk management, and compliance, as well as key specific issues and decisions. The Chairman of the Supervisory Board was informed immediately about any major events of fundamental importance for assessing the business situation and development, as well as for the management of the SICK Group.

No conflicts of interest involving members of the Supervisory Board regarding the execution of their duties arose during the reporting year.

With effect from the end of the ordinary Annual General Shareholders' Meeting on May 16, 2018, former Supervisory Board members Roberto Hernandez and Engelbert Herbstritt departed from office. At the same time, the replacement members Susanne Tröndle (for Roberto Hernandez) and Karl-Heinz Barth (for Engelbert Herbstritt) took up their positions on the Supervisory Board. The new Supervisory Board member Susanne Tröndle was elected Deputy Chairwoman of the Supervisory Board in place of former member Roberto Hernandez.

Meetings and decisions of the Supervisory Board

The Supervisory Board of SICK AG held four ordinary meetings during the fiscal year 2018 as well as one inaugural meeting immediately after the Annual General Shareholders' Meeting on May 16, 2018. The Board used these meetings to address all issues of relevance to the company and make the necessary decisions. For some time during each meeting, the Supervisory Board met without the presence of the Executive Board, enabling the Supervisory Board to discuss points on the agenda that either concerned the Executive Board itself or which required strictly internal discussion within the Supervisory Board. The Supervisory Board meetings focused on the following topics, in particular:

At the ordinary Supervisory Board meeting held on March 22, 2018, the Executive Board informed the Supervisory Board comprehensively and in detail about business development during 2017, particularly regarding industries and business fields, Global Business Centers, Sales and Service, as well as Human Resources. Then, in the presence of the auditor, the Supervisory Board examined the accounting and Group accounting for SICK AG for the fiscal year 2017, with the audits of the financial statements conducted by the auditor Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft (EY) and with the Executive Board's proposed appropriation of the retained earnings generated during the fiscal year 2017. The Audit Committee reported on all aspects for which it is responsible within the context of the accounting and Group accounting of SICK AG, in particular regarding the nature and scope of its audit of the documents relating to the financial statements. The Committee recommended that the entire Board approve these documents. The auditor then explained its audit results and the discussion that took place during the meeting of the Audit Committee on March 15, 2018, during which these results were comprehensively debated. The auditor answered any questions raised in this context. The Supervisory Board approved the result of the audit of the financial statements. Following the final results of its own review, the Supervisory Board raised no objections and approved the accounting and Group accounting of SICK AG for the fiscal year 2017. The Supervisory Board also reviewed the Executive Board's proposal for the use of the retained earnings and approved it on the recommendation of the Audit Committee. In addition, the Supervisory Board passed its proposed resolutions for the agenda of the Annual General Shareholders' Meeting on May 16, 2018. During this meeting, the Executive Board also provided information on the course of the first months of the fiscal year 2018 and gave a brief description of the prospects for the following months. The 15 internal start-up initiatives founded in late 2017 to drive forward digital business models were also presented, and the networking of the initiatives with existing organizational units was explained. Furthermore, the Supervisory Board examined the analysis of the SICK Group's competitive position compared to direct competitors and to comparable family-run companies. Finally, the Executive Board reported on the current state of the purchase of all the shares in a joint venture in China that had been decided on in December 2017.

At its ordinary meeting on May 16, 2018, the Supervisory Board examined current business performance, particularly regarding the influence of exchange rate developments, as well as the economic forecasts for the rest of the year. The Executive Board explained the possibilities for flexibly reacting to fluctuations in demand and for reducing costs if the economy started to overheat. The Supervisory Board also held an inaugural meeting on May 16, 2018, immediately after the end of the Annual General Shareholders' Meeting, as a result of the changes in its composition. During this meeting, Susanne Tröndle was elected Deputy Chairwoman of the Supervisory Board for the remaining term of office of the resigning member Roberto Hernandez.

The ordinary meeting on September 27 and 28, 2018, was dedicated to digitalization. First, the current business situation and the difficult state of affairs on the procurement market for electronic components were analyzed and discussed. The Executive Board also presented measures for reducing net liabilities. This was followed by the detailed presentation of the company's strategic and organizational alignment up to 2030, taking into account the future development of the automation industry – which will be strongly affected by Industry 4.0 and the resultant changes in the competitive environment. In connection therewith, the start-up initiatives in the fields of infrastructure, applications, and services for Industry 4.0 were presented. In addition, the Executive Board provided information on the further development of selected Industry-4.0-relevant organizational units and on their main current activities. Furthermore, the topics of customer requirements and risk management were discussed in the context of Industry 4.0. Whereby the reason why agile structures are essential for future corporate success was also discussed. Moreover, the Executive Board presented a comprehensive competitor analysis for Germany, the USA, and China. In addition, the financial medium-term planning from 2019 to 2021 was explained in detail, and the strategic prospects for 2020 to 2030 were presented. Both were taken notice of and approved by the Supervisory Board. The Supervisory Board also approved the purchase of a piece of land in the USA, including the construction of a building there. The three existing sites in Minneapolis are expected to be gradually consolidated during the coming years to form a "Campus USA" at this location. The Supervisory Board also approved expansion of the site in Hungary, including construction of a third production hall, the sale of all shares held by SICK Engineering GmbH in the former supplier SICK kluge GmbH, and the purchase of the remaining 18 percent share in the joint venture SICK Metering Systems NV in Belgium. The Audit Committee also reported on the state of risk management, compliance, and internal auditing, as well as on the financing situation, and presented the planning of the audits of the financial statements for the fiscal year 2018. In addition, the term of office and employment contract of Executive Board member Markus Vatter was extended for a period of five years with effect from July 1, 2019.

During the ordinary meeting on December 18, 2018, the Executive Board reported on current business development and again presented an analysis of the exchange rate effects. Whereby the focus was mainly on the negative effects on earnings caused by the situation on the procurement market and on possible countermeasures. In addition, the Executive Board provided an overview of the detailed budget and medium-term planning for all Group units and the entire company for the fiscal year 2019. Together with the Executive Board, the Supervisory Board discussed in detail the targets, framework conditions, and assumptions contained in them, as well as the resultant opportunities and risks involved in the planning. The Supervisory Board approved the budget presented for 2019 and the corresponding investment measures – also against the background of the financing presented. The purchase of the outstanding 15 percent share of the joint venture in South Korea was also approved. Moreover, the Supervisory Board approved the Executive Board's proposal to exercise a contractual purchase option to buy the 50 percent outstanding shares in the joint venture in Chile and thus its conversion into a 100-percent subsidiary.

Work in the Supervisory Board committees

The work of the Supervisory Board was supported by comprehensive preparation and monitoring of subject areas assigned to particular committees. The Audit Committee met twice during the reporting year, the Human Resources Committee met four times, and the Investment Committee once. The committee chairs reported in detail on the work of their respective committees at each of the subsequent plenary sessions. As in previous years, it was not necessary to convene the Mediation Committee in accordance with Sec. 27 (3) MitbestG ("Mitbestimmungsgesetz": German Co-Determination Act). As a result of the extensive preparatory work carried out by the committees, the entire Board had a broad and comprehensive information base regarding all the fields assigned to the committees. It was therefore always in a position to address the relevant topics thoroughly and efficiently.

The following Supervisory Board members are on the committees:

- Audit Committee: Franz Bausch (Chairman), Prof. Dr. Mark K. Binz, Klaus M. Bukenberger, Dr. Matthias Müller, Thomas Weckopp
- Human Resources Committee: Klaus M. Bukenberger (Chairman), Franz Bausch, Roberto Hernandez (until May 16, 2018), Renate Sick-Glaser, Hermann Spieß, Susanne Tröndle (since May 16, 2018)
- Investment Committee: Klaus M. Bukenberger (Chairman), Karl-Heinz Barth (since May 16, 2018), Dr. Bernd Cordes, Sebastian Glaser, Engelbert Herbstritt (until May 16, 2018)
- Mediation Committee in accordance with Sec. 27 (3) MitbestG: Klaus M. Bukenberger (Chairman), Engelbert Herbstritt (until May 16, 2018), Renate Sick-Glaser, Hermann Spieß, Susanne Tröndle (since May 16, 2018)

The committees focused on the following key areas in 2018:

- The Audit Committee concentrated on its assigned duties regarding preparation of the audits of the financial statements and recommendations for the entire Board regarding the financial statements. It also examined compliance, risk management, internal auditing, Group taxes, and financing
- The Human Resources Committee examined, in particular, also against the background of the generational change that will take place in coming years, the further development of the structure and composition of the Executive Board. In this connection, the Committee prepared the contractual extension of Markus Vatter, Executive Board member for Finance, Controlling & IT, which was then unanimously approved. The remuneration of the Executive Board members was also reviewed as part of its regular examination
- Work in the Investment Committee focused on examining the investment plans for 2019 and the corresponding financial planning

Annual and Group accounting for the fiscal year 2018

Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft (EY) was responsible for auditing the accounting and Group accounting of SICK AG for the fiscal year 2018. On May 16, 2018, EY was chosen as the auditor and Group auditor by the Annual General Shareholders' Meeting of SICK AG. The Annual General Shareholders' Meeting thus approved the proposal of the Supervisory Board, which corresponded to the recommendation from the Audit Committee. Prior to the Supervisory Board proposing EY to the Annual General Shareholders' Meeting for selection as the auditor, EY had confirmed that there were no circumstances that could compromise its independence as an auditor, or justify any doubts as to its independence. In this context, EY also declared the scope of any services rendered to the company beyond the audit of the financial statements in the previous fiscal year and any services contractually agreed upon for the following year. EY audited the annual financial statements of SICK AG, prepared in compliance with the HGB ("Handelsgesetzbuch": German Commercial Code), the consolidated financial statements, prepared in line with the International Financial Reporting Standards (IFRS), as well as the combined group management report and management report of SICK AG – and provided unqualified audit opinions. The auditor thus confirmed that, in its opinion and based on the findings of the audit in accordance with the applicable financial reporting framework, the annual financial statements and consolidated financial statements give a true and fair view of the net assets, financial position, and results of operations of SICK AG and the SICK Group. Moreover, the auditor confirmed that the combined group management report and management report of SICK AG are consistent with the corresponding annual financial statements and the consolidated financial statements; that, overall, they provide an appropriate view of the position of the SICK Group and SICK AG; and that they suitably represent the opportunities and risks of future development. All Audit Committee and Supervisory Board members received the audit documents mentioned above, the audit reports prepared by EY, and the Executive Board's proposal concerning the appropriation of retained earnings in good time.

On March 4, 2019, the Executive Board of SICK AG finalized the accounting and Group accounting of SICK AG for the fiscal year 2018, consisting of the annual financial statements, the consolidated financial statements, as well as the combined group management report and management report of SICK AG, and approved these documents for submission to the Supervisory Board.

At the meeting of the Audit Committee on March 19, 2019 and at the accounts meeting of the Supervisory Board on March 27, 2019, the Executive Board explained the accounting and Group accounting of SICK AG and its proposals concerning the appropriation of retained earnings. Members of the Executive Board also answered questions from members of the Audit Committee and the Supervisory Board.

After explanations by the Executive Board, the Audit Committee and Supervisory Board reviewed the audit documents for the company and the Group in the light of EY's audit reports. The auditor who attended the Audit Committee meeting and the Supervisory Board's accounts meeting presented detailed reports on the audit and its results and explained the audit reports. Whereby the auditor also reported that it had not found any material weaknesses in the company's internal control and risk management systems in relation to the accounting process. Both the Audit Committee and the Supervisory Board asked the auditor detailed questions on the results of the audit and on the form and scope of the auditing activities. Discussions with the auditor also dealt with the issue of the legality of the company management, of which the Supervisory Board had assured itself. The Audit Committee also reported to the Supervisory Board on its own review of the accounting and Group accounting of SICK AG, its discussions with the Executive Board and with the auditor, as well as its supervision of the accounting process. The Committee confirmed that as part of its supervisory function it had addressed the effectiveness of the internal control, risk management, and internal auditing systems – and found them effective.

The Audit Committee also reported that according to the information provided by EY, there were no circumstances that might give cause for concern about the auditor's impartiality. Moreover, the Committee reported on its examination of the auditor's independence, taking into consideration the non-audit-related services EY had provided, and the Committee's assessment that the auditor possessed the necessary level of independence.

The Audit Committee and the Supervisory Board were able to satisfy themselves that EY had conducted the audit properly. In particular, they arrived at the conclusion that both the audit reports and the audit itself meet the legal requirements. The Supervisory Board discussed all audit documents for the company and the Group in addition to information from EY and it approved the result of the audit of the financial statements on the basis of the Audit Committee's report and recommendation. Since it also had no objections following the final results of its own review, the Supervisory Board gave its consent to the annual financial statements, the consolidated financial statements, and the combined group management report and management report of SICK AG for the fiscal year 2018. The annual financial statements were thus formally adopted. The Supervisory Board agreed with the assessment of the situation of the company and the Group as set out by the Executive Board in the combined group management report and management report of SICK AG. The assessment of the Executive Board was also consistent with the reports submitted by the Executive Board to the Supervisory Board over the course of the year.

The Supervisory Board considered the proposal previously explained by the Executive Board concerning the appropriation of retained earnings – particularly regarding dividend policy, the effects on the liquidity of the SICK Group, and the interests of the shareholders. Following the recommendation of the Audit Committee, the Supervisory Board then accepted and endorsed the Executive Board's proposal concerning the appropriation of retained earnings. The Supervisory Board finally adopted this report to the Annual General Shareholders' Meeting.

The Executive Board also prepared a report on relationships with affiliated companies in the fiscal year 2018 (dependent company report) and presented it to the Supervisory Board together with the audit report prepared by the auditor. The dependent company report was audited by the auditor, who provided the following audit opinion thereon:

"Based on our audit and assessment in accordance with our professional duties, we confirm that

1. the factual information in the report is correct and
2. the company's contribution regarding the legal transactions referred to in the report was not inappropriately high."

The Supervisory Board reviewed the Executive Board's dependent company report and the auditor's audit report. In the Audit Committee meeting on March 19, 2019, and the Supervisory Board's accounts meeting on March 27, 2019, the Audit Committee and the Supervisory Board, respectively, had the members of the Executive Board explain the dependent company report. The Executive Board also answered questions on this matter from members of the Committee and the Supervisory Board. The auditor also attended these meetings, reporting on its audit of the dependent company report and its principal auditing results, explaining its audit report and answering questions about it. The Supervisory Board could thus satisfy itself as to the regularity of the dependent company report, the audit of the dependent company report, and the audit report. The Supervisory Board states that following the final results of its own review no objections are to be raised against the final declaration of the Executive Board in the report on relationships with affiliated companies.

The Supervisory Board would like to express its sincere gratitude and appreciation to the members of the Executive Board as well as to all the employees in the SICK Group for their great commitment and valuable contributions during the successful but demanding fiscal year 2018 and wish them every success in the new fiscal year, during which the challenges will definitely not be any smaller.

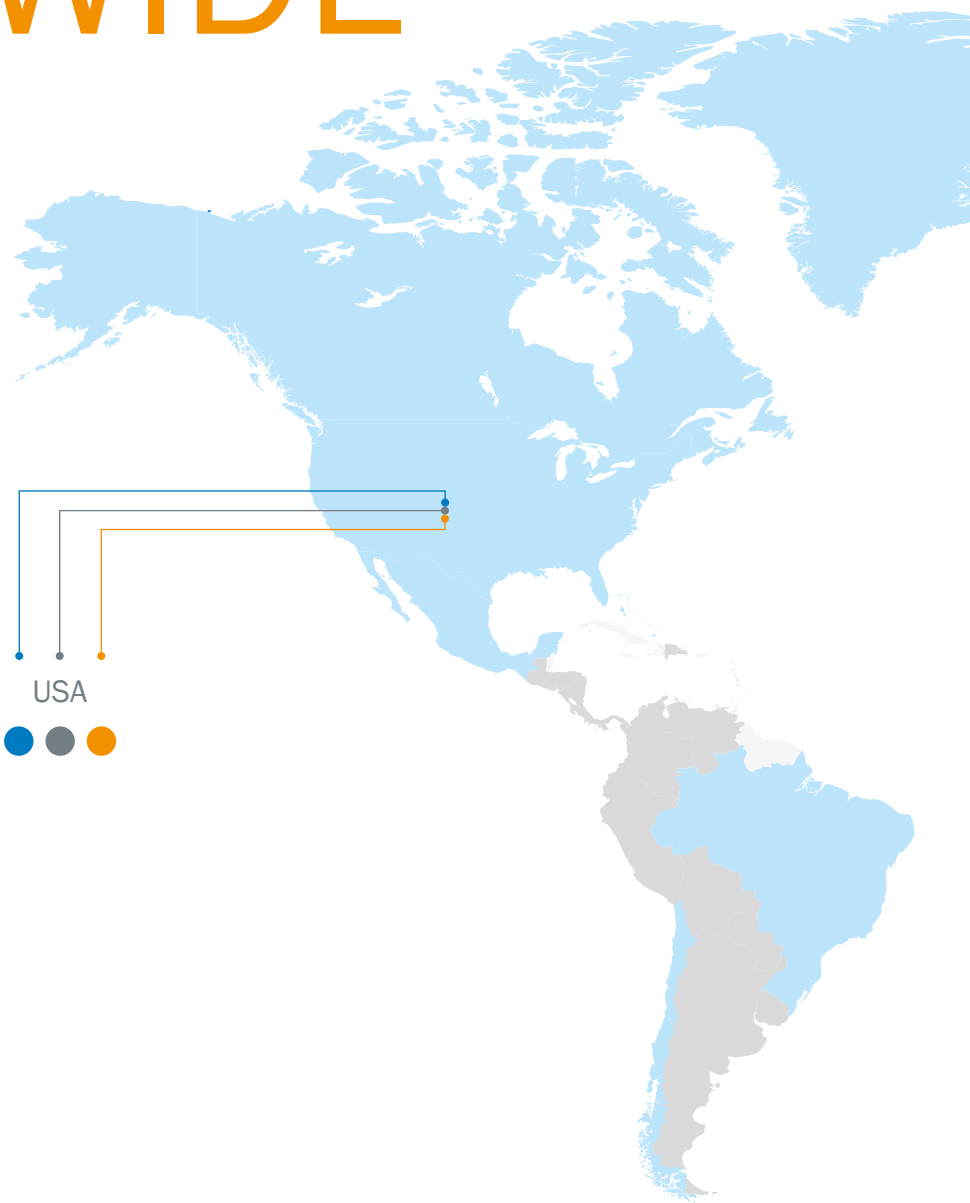
Waldkirch, March 27, 2019






On behalf of the Supervisory Board



Klaus M. Bukenberger
(Chairman)

SICK WORLDWIDE



-  Subsidiaries and representative offices
-  Agencies
-  Production
-  Regional Competence Centers
-  Development



INTELLIGENT



NETWORKING





A transport cart on the way to the next module

WELCOME THE FUTURE

Everybody's talking about Industry 4.0, the fourth Industrial Revolution that is well under way: The networking and control of machines and processes with the help of information and communication technologies is causing major changes in manufacturing.

While the production of the future is still taking shape, it is already reality at one of SICK's sites: Instead of rigid lines, twelve fully automated assembly modules, four manual modules, and one hybrid stand like islands in the light and airy hall. The order in which the modules are used in the production

process varies according to the requirements. Material is supplied via automated guided carts that drive autonomously along the aisles and interact with humans in a collaborative work environment. All processes are controlled by high-performance software developed by SICK. All information for the particular order is stored in this so-called multi-agent system, e.g., product properties, unit numbers, and instructions on which production step is necessary on which module. The system sends the information to the machines and constantly receives feedback. All the actors – sensors, machines, and humans – are organized decentralized, networked, and are in continuous exchange with each other. Whereby the system controls many processes completely autonomously.

None of this is experimental. It is a productive factory that already offers SICK decisive advantages in an increasingly dynamic market. "We currently manufacture five product families here, a total of 12 are planned for the future. Production of more than 500,000 product variants is conceivable," says Joachim Schultis, Head of Operations Photo-electric Sensors & Fibers. "The variances are almost



OPTICAL LINE GUIDANCE SENSOR

The OLS optical line guidance sensor keeps automated guided vehicles and carts (FTF/FTC) on course

TO RE



Real-time insights: Joachim Schultis and his team analyze the production process

limitless with this type of production. So we can respond to customer wishes – which are becoming more and more varied and individual – extremely well. We even produce small unit numbers ‘on demand’ and still affordably for our customers.” The system also offers a clear advantage regarding new products: “We can implement and launch new developments on the market considerably

quicker. The groundwork has been completed and we are now working on further expanding the system.” The high level of flexibility is accompanied by enormous resource efficiency: Orders are prioritized with the help of the software, while the modules and the personnel are optimally employed. Just-in-time production is therefore also possible.



precisely what makes SICK special – and has often created a decisive competitive edge for us,” says Joachim Schultis. Thus, SICK has also already paved the way for further development of the site: “We have thought very far ahead. There are plants here for products that we do not even produce yet,” adds Joachim Schultis. There is still space available for more production modules; a second transport line for material is possible at a height of about three meters. The production of more and more products will gradually be introduced here.

SICK has created the ideal prerequisites for growing with and on Industry 4.0: “We gain valuable expertise here every day, enabling us to improve and further expand this type of production,” explains Joachim Schultis. Whereby what matters is not just the processes and procedures in the digitally networked factory, but also the continuous optimization of our own products, solutions, and services as well as their commercial exploitation – because sensors, as data

Exchanges between the team



SICK early on recognized the enormous opportunities offered by Industry 4.0 and it now wants to fully exploit them with this production plant. Several years of preparation and large amounts of money have been invested in this major project, with which SICK yet again takes on a pioneering role: “The courage to approach new things as an interdisciplinary team and our strong focus on innovation are

suppliers for the control systems, are ultimately the foundation of every Industry 4.0 scenario. "We only use our sensors and sensor systems in the plants. They must demonstrate here what they can achieve under real conditions. This gives us important knowledge on their overall functioning, shows us where we can still achieve optimizations, and provides the stimulus for new developments."

This is, therefore, doubly suitable as an effective scenario for achieving ambitious objectives: "We want to position SICK as an expert and premium partner for Industry 4.0. A company that supports its customers comprehensively and competently on their path into the future," Joachim Schultis sums up. ///

»WE ONLY USE OUR SENSORS AND SENSOR SYSTEMS IN THE PLANTS. THEY MUST DEMONSTRATE HERE WHAT THEY CAN ACHIEVE UNDER REAL CONDITIONS.«

JOACHIM SCHULTIS,
HEAD OF OPERATIONS PHOTOELECTRIC
SENSORS & FIBERS



The fully automated assembly modules can be used in a variable sequence

The front screen, made of chemically hardened pre-stressed float glass, passed laboratory tests



OF MANKIND, MACHINES, AND MATERIALS

A partnership network of experts at MAN, HELLER, and SICK perfects the deTec safety light curtain.

Polycarbonate is a proven material in the machine tools segment. SICK's deTec4 Core safety light curtains are correspondingly equipped with polycarbonate front screens as standard. When, in 2016, MAN Truck & Bus commissioned a complete machine park with 14 HELLER CNC machining centers for milling and drilling work, there was no reason not to use the proven material. In response to a request from MAN, HELLER had equipped the machining centers, which they had specially designed for MAN, with deTec4

Core safety light curtains from SICK to safeguard the machine doors. Everything went well at first. After a few months, however, the light curtains suffered more and more failures because their polycarbonate front screens were broken near the end caps at the bottom, resulting in machine downtime.

During the fault analysis, coolants and lubricants were at the top of the list of suspected causes because their chemical compositions often change and there are no labeling requirements. The suspicions were confirmed when experts at SICK's Repair Center examined the returned devices and carried out tests in the plastics laboratory with samples of the coolants, lubricants, and detergents used by MAN. The specialists from MAN, HELLER, and SICK all agreed



»WE ARE VERY SATISFIED WITH THIS RESULT AND THE EXCELLENT COLLABORATION WITH THE EXPERTS FROM SICK.«

MAN TRUCK & BUS

that the only reliable solution to this problem had to be in a form that was independent of whatever composition was used. This meant thinking beyond the hitherto successful use of the plastic polycarbonate.

Glass is one of mankind's oldest materials. Thermal toughening results in an internal change in its structural stresses, increasing its bending strength. Smaller notches and scratches cannot do much damage to the glass; cracks or ruptures are prevented. What is ideal for touchscreens may also be advantageous with aggressive fluids or gases, the team of experts thought. SICK decided to develop a product variant of the deTec with a front screen made of chemically hardened, pre-stressed float glass and use it for the first time at MAN. "Thanks to the glass front screens, the new deTec HG safety light curtains

are resistant to aggressive coolants, lubricants, and detergents. We no longer have any unplanned downtime," MAN confirmed. "We are very satisfied with this result and the excellent collaboration with the experts from SICK." The CNC machining centers for milling and drilling work during axle production at MAN Truck&Bus in Munich have been equipped with deTec HG safety light curtains since early 2018. The deTec HG protects operators and is a safe investment for the operating entities – because regardless of the composition of the coolants, lubricants, and detergents used, the safety light curtain ensures a plant stop as soon as an employee reaches into the machine when the door is open. And only then. Unwanted downtime is a thing of the past, and machine availability remains high. ///

deTec HG SAFETY LIGHT CURTAINS

Rugged and resistant – even under extreme conditions



A computer tomography provides information on the state of the front screen



THINKING



»WE SIM FANTAS THAT IS AND OU



The young start-up initiatives at SICK have a fresh mind-set and the ability to carry out agile thinking and action. At the same time, they are well-anchored on a solid Group basis. They have achieved astonishing results with this combination.

“Traditional development work involves us telling our best engineers to develop a sensor that can detect, say, straps on packages,” Nina Kadisch, team member of the Deep Learning/ Analytics start-up initiative, explains the difference between the established and the new, disruptive development strategy. “The team of experts must then engage with every possible constellation of straps on packages and try to achieve a result with conventional algorithms, slowly optimizing it in repeated practical tests and bringing it to market maturity.” Nina Kadisch frowns deeply during this description. She then makes a fundamental shift in



Deep learning is a key technology that changes the current limits of sensor intelligence

perspective: “Let’s consider the whole thing with the cognitive abilities of a school child – after a learning phase, the child will be able to say whether there is a strap or not. The child would solve even unusual and untested constellations intuitively, like detecting a white band on a white package.” It is with exactly this deep learning approach that the team (made up of a total of nine programming, data, and application specialists) is currently implementing a trained neuronal network in order to considerably shorten innovation cycles for even better sensor solutions.

IMPLY MAKE TIC SENSORS – OUR ORIGIN R FUTURE«



Nina Kadisch works in the Deep Learning/ Analytics start-up

Nina Kadisch is standing in an old industrial hall in Waldkirch. There are, however, no more machines here, but dozens of freely arranged desks. In addition to a forum with a large screen, there are also various seating areas with sofas for discussions. Most of the roughly 150 employees from the 15 start-ups that SICK founded last year work here. "New forms of work and collaboration are required when established organizations and processes come up against their limits," emphasizes Dr. Kay Fürstenberg, a member of

»THE TEAM OF EXPERTS MUST THEN ENGAGE WITH EVERY POSSIBLE CONSTELLATION OF STRAPS ON PACKAGES AND TRY TO ACHIEVE A RESULT WITH CONVENTIONAL ALGORITHMS, SLOWLY OPTIMIZING IT IN REPEATED PRACTICAL TESTS AND BRINGING IT TO MARKET MATURITY.«

NINA KADISCH,
TEAM MEMBER OF THE DEEP LEARNING / ANALYTICS
START-UP INITIATIVE

Start-up initiatives that are closely linked in terms of topic coordinate their activities and consolidate them efficiently

the start-up steering team, which addresses and operatively coordinates the work of all the initiatives. “In addition to added value for the customers, speed, above all, has become a key factor for surviving in competition.”

In terms of speed, Nina Kadisch's team is doing well: “Our proven systems open up easy first market access for us. We have already installed systems that are trained using deep learning principles in the field test. We want to improve the individualization of packages, the classification of goods consignments, or empty tote detection in sorting containers.” But this is just the first step, because the team wants to transfer solutions found in this way to standard solutions and adapt them customer-specifically.

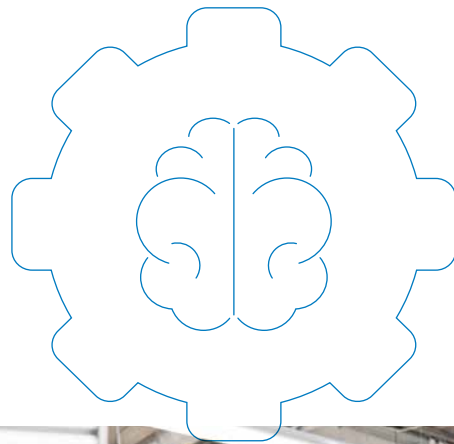
Enabling sensors to collect data is common to all 15 start-ups at SICK. Because in addition to the indispensable hardware, Industry 4.0 needs one thing above all – data. In future, users should be able to better use their sensor data in the spirit of Industry 4.0. This is based on industrial automation solutions in the form of established serial products, systems, or services. The start-up initiatives

The start-up initiatives decide for themselves how they want to work on their topics – both regarding methodology and the personnel involved





The 15 start-up initiatives create synergies through collaboration and open exchanges with existing Group units



expand these solutions with added value from the world of data, process the ideas of Industry 4.0 with the competence of SICK, and thus offer added value for the customers through the direct use of data.

In view of the speed with which these requirements have to be implemented, the working organization must be characterized by highly flexible structures and ways of thinking. In this way, the course can be corrected immediately if new knowledge requires changes in the objectives: "In the start-up initiatives, we rely on the founder mentality of the people involved and on flat hierarchies. Great flexibility is necessary to reach the so-called Moving Targets, i.e., the aims that change during the course of the project. Knowledge is further developed through an open exchange within the world of SICK, but also with our customers. Thus, networking is converted into

knowledge and knowledge into innovations," Dr. Kay Fürstenberg sums up the mind-set, intention, and aims of the start-up organization.

Above all, the teams are characterized by courage as well as visionary thinking and action. Whereby they exploit the strengths of SICK's existing organization, which has, in effect, prepared the development of Industry 4.0 through its many years of work in the field of sensor intelligence. Nina Kadisch is convinced: "We simply make fantastic sensors – that is our origin and our future. Our organization has invaluable expertise. With the start-ups, we can also use it in new, more agile ways of thinking and working." Ultimately, it is the customers who will profit most, as is already being demonstrated by the enormous interest in the sensors trained using the deep learning approach. ///

Matrix production live
at the KUKA Smart-
Production Center

Source: KUKA AG,
Augsburg

PERFECT TEST RELIABILITY AT THE SMART- PRODUCTION CENTER



KUKA uses the Ranger 3D vision camera from SICK in its future-oriented SmartProduction Center in Augsburg.

The pilot plant impresses visitors: standardized production cells with four robots each and rotary tables for components and tools, separated by aisles with automated guided vehicle systems. The AGVs transport the necessary components to the appropriate cells, industrial robots take over the handling and assemble the parts, e.g., for a car door. The standardized production cells are provided with basic product-neutral functionalities, but, controlled by KUKA's artificial-intelligence-based SmartProduction_control software, intelligently equip themselves with product-specific tools according to the order and batch size. Thus, for example, vehicle doors and wheel arches can be produced on the same plant. KUKA implements the principle of matrix production here. It is a system whose

states are fully monitored and transparent. During component feeding, precise placement of the components to be processed must be inspected: It is necessary to ensure that the components are provided in the right number, for the right model, in the right position, and in the necessary quality. The 3D Scanning System, with its high-speed camera from SICK, is responsible for this inspection.

The Ranger 3D vision camera scans the component and transfers the geometric information to a central computer via Ethernet. The point cloud of the current placement situation, generated in the integrated HALCON image-processing library, enables comparison with the specification. Data can optionally be uploaded into cloud solutions via the OPC UA communication protocol. "We have high standards regarding accuracy, resolution, and process reliability. We can meet these requirements with the Ranger 3D vision camera from



RANGER 3D VISION CAMERA

With its high 3D measurement speed, data quality, and flexible MultiScan function the camera serves as the main image-processing component in inspection systems worldwide

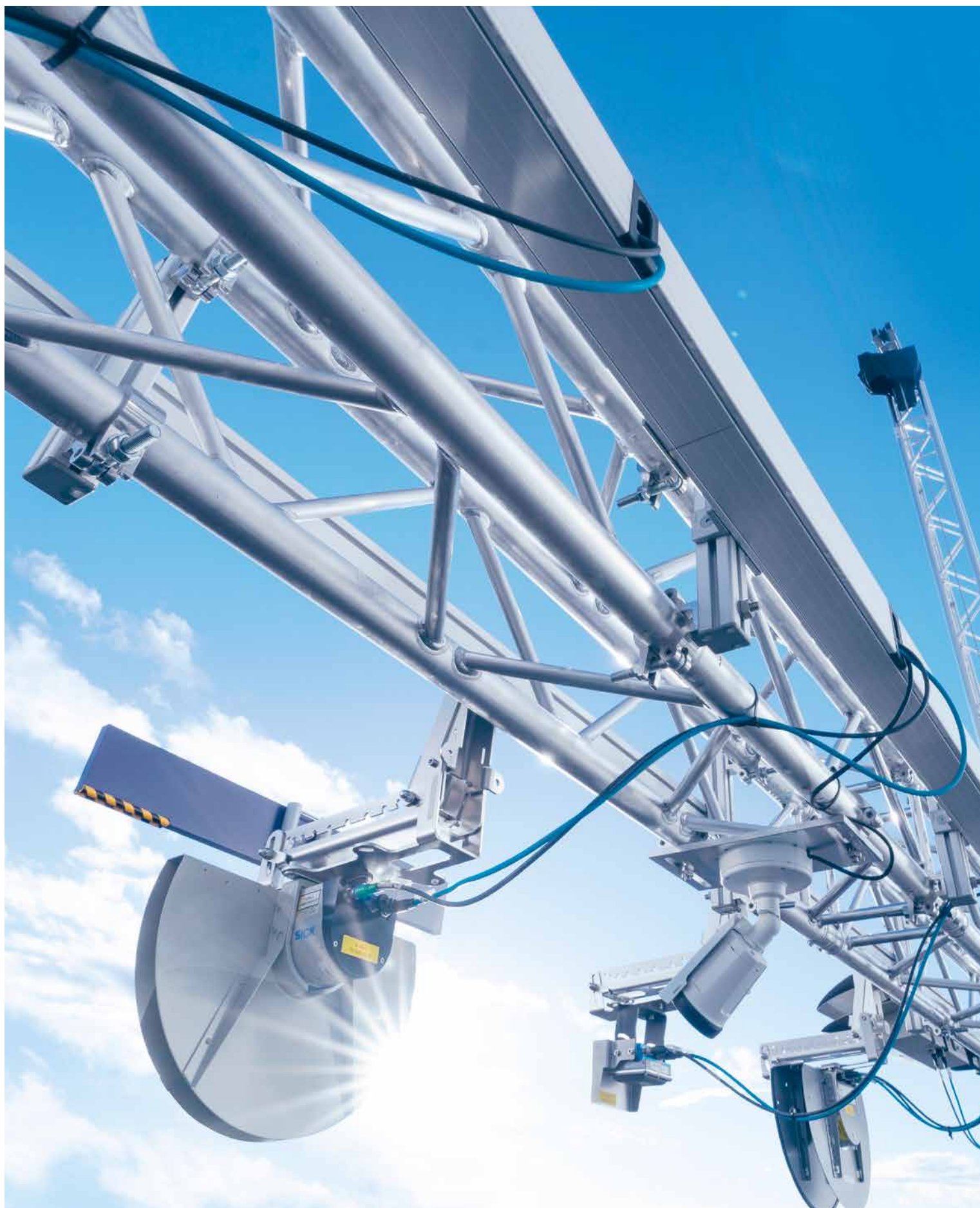
SICK, even with the required large measurement volume of 4.20 m length, 2.20 m width, and one meter depth,” explains Martin Eberl, development engineer at KUKA. “On the one hand, large components have to be inspected. On the other hand, small deviations, such as a double sheet situation, must be detected if the operator lays two components on top of one another by mistake, for example. The camera must therefore be able to reliably detect a height difference of 0.8 mm.” Based on these requirements, KUKA was looking for a camera with a height resolution of better than 0.2 mm and a measurement volume of about nine cubic meters. Ranger’s flexible concept enables KUKA to implement the optimum setup for the task regarding measurement range and volume.

The high-speed camera from SICK is in its element in the progressive pilot plant because it has the necessary high level of flexibility where individualized series, as an essential component of Industry 4.0, become feasible without restrictions within the framework of industrial mass production. Thanks to its unique MultiScan technology, a single camera can fulfill the tasks which would otherwise require several cameras. The costs for integration, maintenance, and accessories are reduced while the amount of dependable and qualified data for smart production increases. ///

»WE HAVE HIGH STANDARDS REGARDING ACCURACY, RESOLUTION, AND PROCESS RELIABILITY. WE CAN MEET THESE REQUIREMENTS WITH THE RANGER 3D VISION CAMERA FROM SICK.«

MARTIN EBERL,
DEVELOPMENT ENGINEER, KUKA

PREDICTING



CHALLENGES



SICK offers solutions for traffic safety in railway stations and other rail areas



AUTOMATED PROCESSES INDOOR AND OUTDOORS

SICK can rely on a broad technology portfolio and on its experience in the automation of machines and vehicles.

Its mobile material flow solutions within factory buildings range from cellular conveyor systems and pallet shuttles through freely navigating, autonomous transport vehicles to narrow aisle forklifts, indoor cranes,

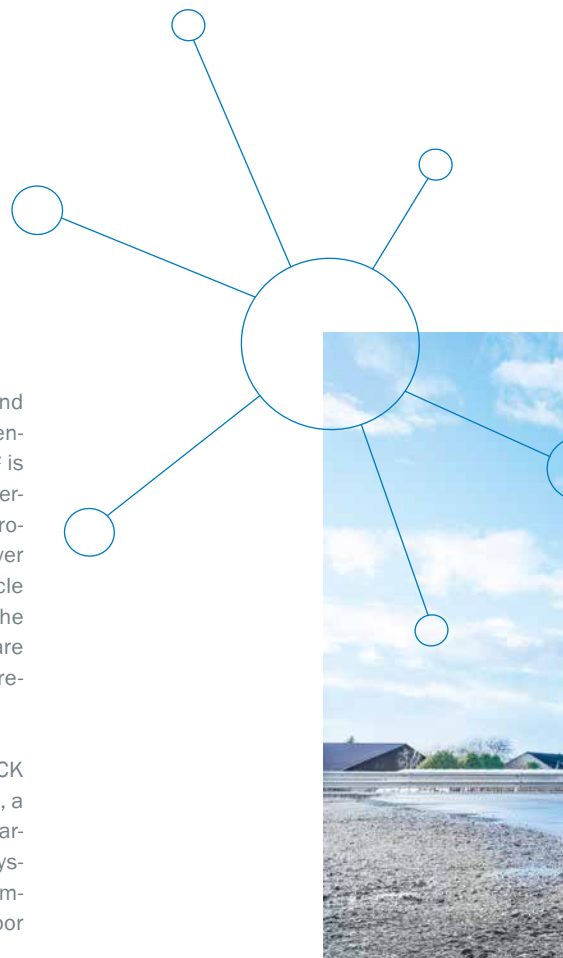
and special vehicles. But solutions for use in outdoor applications and under changing weather conditions, or for mobile operation underground, are also no new challenge for sensors from SICK – they have long proven themselves in demanding applications at ports, in mines, and in many other areas of use.





SICK has been providing presentations, product training, and acceptance tests for customers at its own Outdoor Technology Center since summer 2018. A total outdoor testing area of 3,500m² is available to cover seven different thematic aspects involving numerous customer applications outdoors, e.g., windrow detection for processing crop and mowed material on agricultural machinery, driver assistance systems, or the comprehensive monitoring of vehicle surroundings to increase operational safety outdoors as well. The results gained at the Outdoor Technology Center in Buchholz are merged with data from other testing stations to create a comprehensive scenario of automation solutions in outdoor use.

In addition to the Outdoor Technology Center in Buchholz, SICK also has a test area for traffic monitoring at Stans in Switzerland, a rain chamber at the Reute site, and a fog chamber at its headquarters in Waldkirch. SICK also tests its new sensors and sensor systems on the grounds of the Outdoor Technology Center, for example, the world's first safety laser scanner certified for use in outdoor applications according to IEC 62998 – the outdoorScan3.



OORS



Indoor meeting for outdoor solutions

»DESPITE VARYING WEATHER EFFECTS, THE outdoorScan3 CAN PROTECT STATIONARY AND MOBILE APPLICATIONS WITHOUT ANY ADDITIONAL PROTECTIVE DEVICES.«

MICHAEL BADEJA,
PRODUCT MANAGER
MULTIDIMENSIONAL SENSORS, SICK

The outdoorScan3 with weather protection hood



Testing technical properties under varying environmental conditions



Automated guided vehicles are an everyday sight in many production halls. They transport loads and supply conveyor systems. They enable flexible and productive material flows and are a key technology for automation concepts of the future. The use of these transport systems in a working environment shared by humans and machines, however, has only been made possible through the use of safety laser scanners: They protect this collaboration and ensure the protection of people. But production chains often cannot be reduced to interconnected interior spaces. And the outdoorScan3 now permits automated guided vehicles to undertake tasks outdoors – without any additional protective equipment or need for considerably slower speeds. The outdoorScan3 thus closes an important gap in the automation of industrial processes. Outdoor operation presents safety sensors with much greater challenges than they face when used indoors. There are no weather-related effects in industrial halls, nor do the light and temperature conditions undergo such extreme changes. Outdoors, however, sensors must be sensitive when weak signals have to be perceived in order



outdoorScan3

Ensures safety – even in the open air

to reliably detect persons. At the same time, however, the sensors must ignore signals that interfere with their operation. The outdoorScan3 dependably masters these challenges and offers reliable use within a temperature range from -25 to $+50$ °C.

The outdoorScan3 now makes it possible to increase the level of automation of outdoor industrial processes, as is already familiar in the indoor industrial environment. Despite varying weather effects, the outdoorScan3 can protect stationary and mobile applications without any additional protective devices. This demonstrably intelligent functionality and the rugged design of the outdoorScan3 safety laser scanner have been certified according to IEC 62998 (the new standard for safety sensors) for the first time worldwide, opening up opportunities to work even more productively – while maintaining a high level of personal protection and achieving considerable increases in efficiency. Production and storage areas can be reinterpreted and optimally

exploited. The resulting possibility of human-machine cooperation and the safe navigation of automated guided vehicles outdoors enable the creation of a real, autonomously controlled, value-added chain in the spirit of Industry 4.0.

With the outdoorScan3 safety laser scanner, SICK has closed another gap in the full automation of industrial processes. And with the leap from indoors to outdoors, SICK has once again shifted the limits of what is possible. ///

The results gained from the Outdoor Technology Center are networked with data from other test stations



The LMS5xx 2D LiDAR sensor with ultra-rapid multi-echo technology makes laser measurement applications independent of weather conditions and increases the reliability of the data gained



PLEASE WELCOME COLLEAGUES CLARA AND CLAUS

Collaborative robots work side by side with their human colleagues at Continental in Babenhausen, Germany. A comprehensive safety solution from SICK ensures that they can work safely with one another.

“**Claus, the ‘clever automated universal robot system’**, and Clara, the ‘clever automated robot application’, are our semi-mobile light construction robots that do stationary work, but can also be used for mobile tasks,” Heiko Liebis, Industrial Engineering, Robotics, Continental Automotive GmbH, describes the cobots and their advantages. “This concept enables us to lift the robots and move them elsewhere for another shift, so we can work on two plants with the same robots. At one plant for the early shift, and on a different one for the late or night shift.”

By getting rid of rigidly linked production lines, Continental has increased its productivity in reaction to the increasing variety of models and variants as well as the rising dynamism resulting from shorter product life cycles in the automotive industry. Robots equip the test stands on the new inspection line in Babenhausen by taking a component off the conveyor belt, placing it in the testing machine, removing the tested device again, and putting it on the next conveyor. Workers are busy between the robots, for example, dealing with rejected test pieces. Whereby Claus and Clara always maintain a safety distance to their colleagues. This is ensured by the programmable Flexi Soft safety controller from SICK. “Only when the TR4 Direct coded safety switches are verified do the S300 Advanced

Continental has replaced rigid inspection and placement lines with flexible redundant collaborative inspection lines: Cobots feed the automatic inspection machines



The Claus and Clara cobots are built by trainees at Continental Automotive GmbH



TR4 Direct, S300, AND FLEXI SOFT

A safety solution from SICK – consisting of TR4 Direct safety switches, S300 safety laser scanners, and Flexi Soft software-programmable safety controllers – ensures safety in a collaborative combination

safety laser scanners load the stored field sets appropriate for the respective workstation. They must first give the cobot approval before it can load its program and start,” Heiko Liebisch describes initialization.

The safety laser scanners, mounted diagonally for all-round monitoring, show the protective fields and their violation via LEDs with traffic light colors on the front of the devices. In order for the operators to see this even out of the corner of their eyes, the entire body beneath the cobot arm lights up corresponding to the automated color signals. In collaborative mode, Claus turns yellow and reduces speed. In red mode, he stays completely still. When the employee leaves the red protective field, the system automatically restarts and Claus resumes work. No acknowledgement is necessary.

The team around Heiko Liebisch was advised and trained by SICK regarding the design, regulations, legal requirements, and standards for collaborative robotics. “We are very happy with the system, how it works,” Heiko Liebisch comments on the result. Because

high-tech components for car cockpits can thus leave the conveyor system every 15 seconds around the clock at the Babenhau-sen works. Frequent downtime caused by faults is now a thing of the past. ///

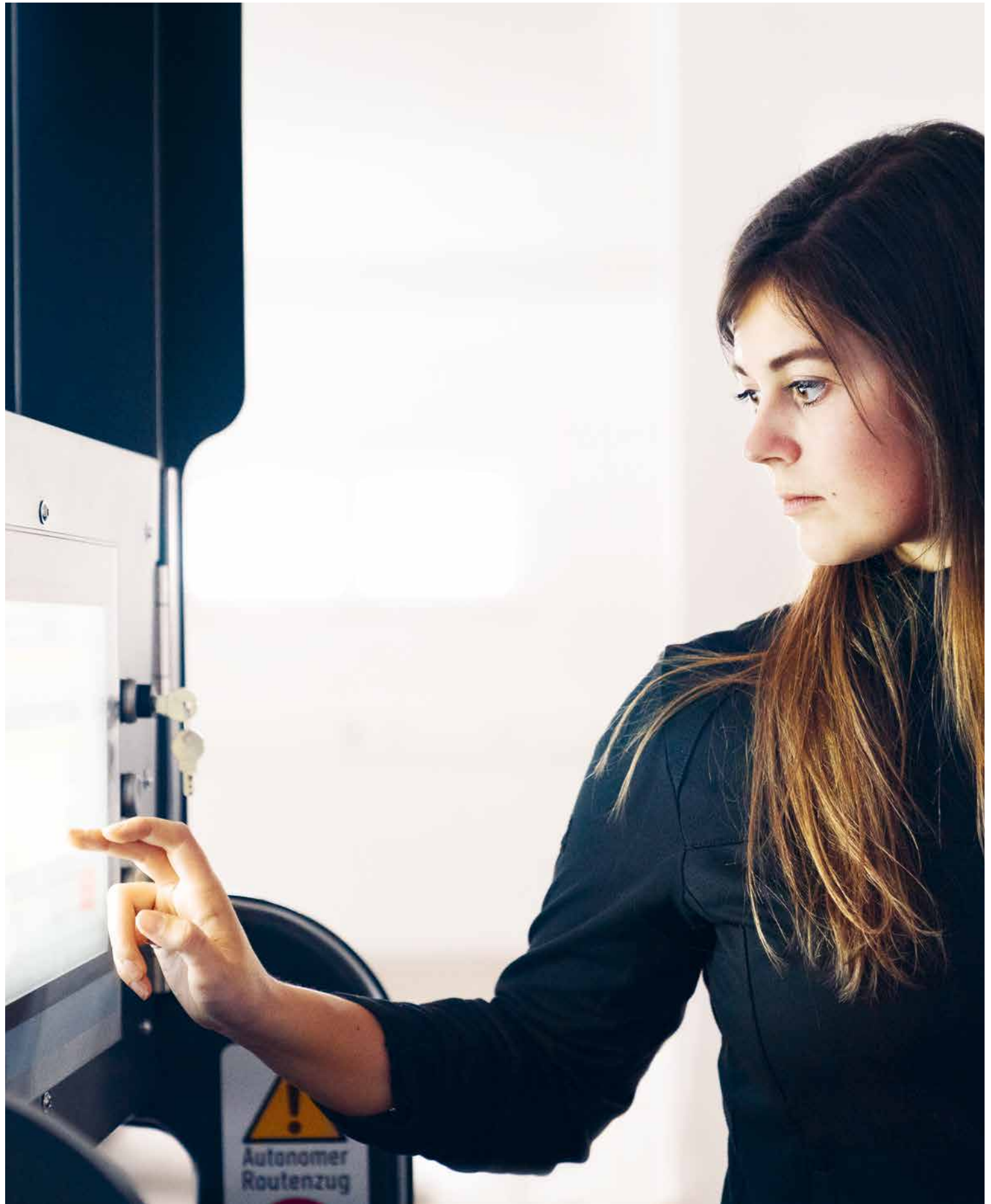
»THIS CONCEPT
ENABLES US TO WORK
ON TWO PLANTS WITH
THE SAME ROBOTS.«

HEIKO LIEBISCH,
INDUSTRIAL ENGINEERING, ROBOTICS,
CONTINENTAL AUTOMOTIVE GMBH

AUTOMATING



PROCESSES





INDUSTRY 4.0 TUGGER TRAINS WAY WITHOUT D

The mass production of self-driving cars may still be a long way off, but the production of non-autonomous cars with the help of autonomous vehicles is in full swing.

Automated guided vehicles (AGVs) and their little siblings, small AGVs or automated guided carts (AGCs), have already been under way in production and logistics halls for some time now. Most of them, however, are line-guided or work on defined routes with fixed reference points. Forward-looking, Schiller Automatisierungstechnik GmbH even relies on complete tugging trains – that are autonomous and drive entirely freely – to ease the increased traffic in factory halls.

Self-driving tugging trains are already in use in the automotive industry. The electric trucks transport production goods to their next point of use on four trailers at ten kilometers per hour. With the help of contour-based localization, the tugging train knows exactly where it is at any time. The autonomous train does not need to be purchased completely new; the existing transport system can be used. A conventional electric truck serves as the basis, retrofitted by Schiller to create a driverless tugging train. This considerably reduces the investment costs. The conversion kit contains sensors for localization and



A complete tugger train – free-moving and driverless

TO GO – S UNDER- DRIVERS

trains takes place using the laser signals of NAV310 2D LiDAR sensors from SICK. These provide precise scanning data that is processed using an algorithm (also developed by SICK) in the SIM2000 Sensor Integration Machine. During processing, this algorithm continuously compares the distances determined from the current scanning data with the reference map, providing the current position and orientation angle of the vehicle without requiring any supplementary reflectors.

The market introduction of SICK's microScan3 Pro safety laser scanner in summer 2018 was the breakthrough for the safety technology required to develop the autonomous tugger train. "It was relatively quickly clear that safety technology would be the central topic for the tugger train, because the main task when developing a tugger train, or operating with trailers in general, would be the trailers' lack of line fidelity," Peter Stoiber, Manager of Automotive Development at Schiller Automatisierungstechnik, explains

vehicle protection, as well as a controller. The autonomous tugger train can also still be used manually with a driver.

The abilities of the driverless tugger trains exceed the automation of earlier solutions. They enable dynamic route guidance according to delivery priorities and the active bypassing of obstacles. The autonomous control and navigation of the tugger



Peter Stoiber (right) upgrades a transport system to a driverless tugger train

»IT WAS RELATIVELY QUICKLY CLEAR THAT SAFETY TECHNOLOGY WOULD BE THE CENTRAL TOPIC FOR THE TUGGER TRAIN.«

PETER STOIBER,
MANAGER OF AUTOMOTIVE DEVELOPMENT,
SCHILLER AUTOMATISIERUNGSTECHNIK

the requirements. "The legal standard demands that any obstacle in the drive path must be detected and, if necessary, the vehicle must stop in such a way that no one can be endangered. The tractor curves of the trailers must be taken into account when cornering. With big trailers this could well make a difference of one to one and a half meters, depending on the curve radius and angle." The protective fields of the microScan3 Pro are ideal for cornering and parking: Flexible adaptation to the surroundings takes place with up to 128 freely configurable fields and eight simultaneous protective fields. Thanks to the protective fields, the tugger trains can gradually reduce their speeds. The protective field range of 5.5m enables the high speed of the tugger trains and thus high throughput and high productivity.



NAV-LOC AND microScan3 Pro

The conversion kit contains the NAV-LOC localization system (consisting of a 2D LiDAR sensor and the SIM2000 Sensor Integration Machine) and the microScan3 Pro safety laser scanner



The protective fields of the microScan3 are ideal for cornering

Keeping track of interactions with a smartwatch



The display of the microScan3 is set to green – no obstacles. The journey continues

In view of the human-machine interaction, Schiller decided on a wearable mobile device: A smartwatch supports logistics employees during the container-changing process and announces approaching tugger trains via a vibration alarm. Employees can also read out which container they should unload and send the tugger train to its next destination via touchscreen. “With four trailers, the vehicle has a total length of almost ten meters. This means that if I remove the fourth container, I will have to walk the ten meters forward in order to activate the vehicle’s start button and then walk back again. These are all transit times that cost money at the end of the day. And this can be prevented with the watch,” Peter Stoiber describes the advantages.

The complexity of processes in production and logistics is constantly rising. The batch sizes to be produced are becoming ever-smaller. The aspiration remains: a level of efficiency that is equal to that of mass production. Flexibility and speed are called

for. This is why rigid continuous conveyors in existing logistical solutions are being supplemented, e.g., with industrial trucks that drive around according to the taxi principle. A mixture of automated and manual processes will therefore have more and more influence on what the delivery chain will look like in future. This complicated logistical network requires efficient management. Transparency beyond system boundaries will be required more than ever: on the conveyor system, on the forklift, regarding the movement of pallets in the warehouse or in the next handling depot – along the entire value-creation chain.

In all this, localization technology is one of the keys to networked Industry-4.0-based production and logistics. It can be used to exploit numerous optimization potentials by enabling the agile planning of production and logistical processes. ///

COMBINED GROUP MANAGEMENT REPORT AND MANAGEMENT REPORT

of SICK AG

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COMBINED GROUP MANAGEMENT REPORT AND MANAGEMENT REPORT

of SICK AG for the fiscal year 2018



Pursuant to Sec. 315 (5) HGB (“Handelsgesetzbuch”: German Commercial Code) in conjunction with Sec. 298 (2) HGB, the SICK group management report has again been combined with the management report of SICK AG. The management report is therefore referred to in the following as the combined management report. The financial statements of SICK AG, prepared in accordance with HGB provisions, and the combined management report will be published in the German Federal Gazette (“Bundesanzeiger”) at the same time. Unless stated otherwise, the information provided below

applies equally to the SICK Group and to SICK AG. Sections that contain information relating only to SICK AG are designated accordingly. Due to rounding differences, figures may differ slightly from the actual figures. The basis of consolidation is presented in detail in the notes to the consolidated financial statements.

The combined management report for the SICK Group and SICK AG for the fiscal year 2018 is presented below as of the end of the reporting period December 31, 2018:

FUNDAMENTAL INFORMATION ABOUT THE GROUP

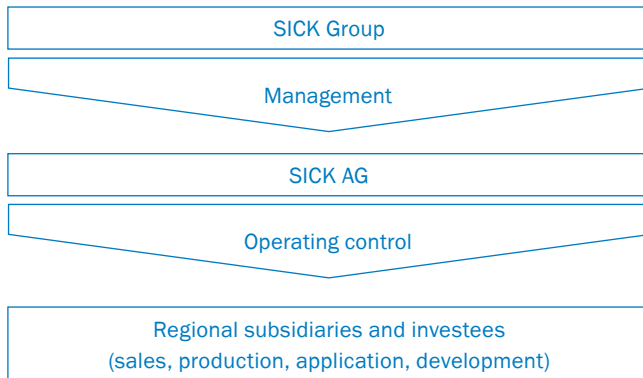
Business model

ORGANIZATIONAL STRUCTURE OF THE GROUP

SICK AG and its subsidiaries (referred to in the following as “the SICK Group,” “SICK,” or “the Group”) are one of the world’s leading manufacturers of sensors and sensor solutions for industrial applications.

The parent company of the SICK Group is SICK AG. The company was founded by Dr. Erwin Sick in Vaterstetten near Munich in 1946 and celebrated its 70th anniversary in 2016. SICK AG carries out the

tasks of group management from its head office in Waldkirch near Freiburg in Germany. The SICK Group’s basis of consolidation comprised 47 entities in the fiscal year 2018. The SICK Group reports on the performance of business in four sales regions: Germany, EMEA (comprising Europe, the Middle East, and Africa), Asia-Pacific, and Americas (consisting of North, Central, and South America). The SICK Group is managed by an Executive Board that comprises five members. A twelve-member Supervisory Board with equal numbers of employer and employee representative forms the oversight body.

ORGANIZATIONAL STRUCTURE OF THE SICK GROUP

The regional structure of the Group reflects the complex structure of the customers and markets. As a result, competence and production centers are located all over the world. The sales function is generally performed by the Group's own sales and service companies in all key industrial countries. The product-generating entities are controlled from the German locations. Regional product centers have been set up in Savage/ Eagle Creek and Stoughton for the US, in Singapore and Johor Bahru (Malaysia) for Asia, and at the German locations as well as in Kunsziget (Hungary) for Europe. These centers develop and produce products for their respective regions and for the global market. The largest manufacturing and development location in Germany is the Group's headquarters in Waldkirch near Freiburg.

CORPORATE GOVERNANCE AND COMPLIANCE MANAGEMENT**CORPORATE GOVERNANCE**

The SICK Group is a family-owned company, with a successful history that goes back more than 70 years. SICK's corporate governance structures rely on a trust-based partnership between the Supervisory Board and Executive Board of the SICK Group, with a clear separation of responsibility for corporate governance and monitoring. SICK's separation between operating authority and ownership meets the standards prescribed by law for stock corporations.

The SICK Group's Executive Board has five members, all of whom have many years of experience working for SICK. The Executive Board is responsible for managing the company, as well as for the business development strategy and its implementation. The Executive Board works closely with the monitoring body, the Supervisory Board. The Supervisory Board and Executive Board are united in their commitment to their responsibility for the independence and long-term growth of the SICK Group.

The Supervisory Board has twelve members, with equal representation for shareholders. Many of the Supervisory Board's members have been part of the SICK Group's monitoring body for many years. The Annual General Shareholders' Meeting appoints six shareholder representatives to the Supervisory Board. The term of office is five years. The owner family holds more than 95 percent of the shares in SICK AG. They are represented by two elected members of the Supervisory Board. The honorary chairwoman of the Supervisory Board is Ms. Gisela Sick, widow of the company's founder Dr. e. h. Erwin Sick. Most of SICK AG's shares are bundled in Sick Holding GmbH. The Supervisory Board monitors the Executive Board's activities and advises it on the key aspects of the company's policies and strategy. Please refer to the Supervisory Board's report in this Annual Report for details of the Supervisory Board's activities, the composition of its committees, and their activities in the fiscal year 2018. Further information on the Executive Board and Supervisory Board is provided in section (44) of the notes to the consolidated financial statements.

COMPLIANCE MANAGEMENT

The success of the SICK Group's global activities requires compliance with a large number of external and internal standards, guidelines, and laws. The aim of the compliance management system at SICK is to be aware of and comply with all statutory regulations and internal guidelines that apply to SICK AG and its group entities. Monitoring compliance in this regard is one of the main tasks of the compliance organization. The Executive Board introduced the compliance management system back in 2010 and expressly emphasized its expectation that all employees in the SICK Group around the world would observe the regulations relevant for SICK. Dr. Martin Krämer is responsible for compliance within SICK AG's Executive Board.

The Code of Conduct provides the underlying structure for all compliance activities at SICK. In addition to the requirement for conduct that is in line with the law, it addresses all of the core issues of compliance, for example by unequivocally denouncing any type of corruption or behavior that infringe anti-trust law. In addition, the Code of Conduct addresses matters such as environmental protection, occupational health and safety, equal opportunities for employees, and the confidential handling of trade secrets, and also requires staff to observe the relevant statutory and internal rules.

SICK's compliance management system is directly subordinate to the Executive Board. The Compliance Officer, who reports to the Executive Board, and the employees with compliance duties at SICK AG and the subsidiaries are responsible for implementing, monitoring, and continuously refining compliance management in the Group. The Compliance Officer regularly reports to the Supervisory Board on compliance at SICK.

If a particular subsidiary has not appointed a Compliance Officer, the management of that subsidiary is responsible for ensuring compliance. The Compliance Committee led by the Compliance Officer defines the compliance requirements in the Group and helps the operating entities introduce and maintain appropriate measures. It monitors the effectiveness of compliance management and initiates additional compliance activities as required. The committee is supported by regular internal and external audits that examine both potential breaches of compliance and weaknesses in the compliance processes. All of the Group's compliance-relevant units are represented on the Compliance Committee, including those responsible for data protection, export controls, occupational health and safety, quality and environmental management, but also the works council and risk management. Those responsible for risk management and compliance examine risks – including compliance risks – across the Group on an annual basis, using a standard risk and compliance management system throughout the Group. Standardized systems and processes are particularly suitable when seeking out new compliance risks, as it is often not possible to clearly demarcate economic process and compliance risks.

BUSINESS ACTIVITIES AND PRODUCTS

The SICK Group is one of the world's leading companies in the field of sensor technology. In line with its brand claim "Sensor Intelligence," the SICK Group focuses on the development, production, and distribution of sensors, systems, and services for industrial automation technology. Business activities center on creating added value for customers from a wide range of target industries with intelligent sensor solutions. SICK offers these solutions globally in the form of components, systems including software, or individual services, for the business fields of factory, logistics, and process automation. The SICK Group's reporting is based on the four sales regions.

BUSINESS FIELDS

The company's business activities are broken down into three business fields:

The **factory automation (FA) business field** is represented in many industries. In addition to the automotive industry and the field of consumer goods, these include the mechanical engineering, electronics and solar industries as well as drive technology. The most important tasks performed by the non-contact sensors and camera systems as well as the encoders and distance measurement systems in this field include controlling manufacturing, packaging, and assembly procedures as well as quality assurance. With special sensors that reliably detect invisible labeling, SICK protects against product and brand piracy, thus making a major contribution to the safety of customers and consumers. In order to reliably rule out dangers to staff working with potentially hazardous machines,

SICK's products, complete solutions, and software solutions under the safetyIQ® brand in the area of safety technology avert potential accident risks. With the help of the bar code, 2D code, and RFID identification technologies as well as volume measurement technology, processes are managed to ensure top-quality end products while at the same time guaranteeing seamless tracking of packaging, an article, or an electronic component if necessary.

The **logistics automation (LA) business field** designs and optimizes the entire logistics chain by automating material flows or making sorting, picking, and warehousing processes more efficient, faster, and more reliable. Identifying and directing baggage on transportation and sorting units at airports is one of the application areas where solutions from the logistics automation business field are used. Logistics centers as well as numerous courier, express, parcel and postal service providers use bar code readers and volume measurement systems from SICK to deliver millions of packages each year quickly and reliably to the recipient's front door. SICK solutions in the distribution centers of well-known retail groups, clothing companies, automobile manufacturers, or specialist retail chains are also responsible for example for keeping the shelves in retail outlets or boutiques constantly filled and for supplying car salesrooms and garages with supplies and spare parts at short notice. The automation of sea ports is another domain in which SICK's logistics automation business field operates. In this field, laser scanners have proved their worth in preventing cranes from colliding as well as in positioning containers or track monitoring for container transporters. In the field of traffic, SICK sensors are used in toll systems as well as in controlling ventilation and air circulation systems, thus improving air quality and safety in tunnels.

The **process automation (PA) business field** provides sensors as well as tailored system solutions and services for analysis and process measurement technology. With a broad range of products for gas analysis, the concentration of a large number of substances in gas mixtures can be detected. SICK helps its customers reduce greenhouse gas emissions with carbon dioxide analyzers for combustion, process, and drying units, for example. In the field of dust measurement technology, SICK is in a position to detect dust concentrations precisely using different measurement principles, thus ensuring compliance with emission limits, or to identify process disruptions at an early stage. SICK sensor systems carry out various tasks in the area of volume flow measurement, for example determining volume flows in facilities and measuring natural gas volumes for the natural gas industry, or monitoring emissions in industrial processes. With all of these products for waste incinerators, power stations, steel and cement plants, for the oil and gas industry as well as for chemical and petrochemical facilities, SICK makes an important contribution to maintaining an environment worth living in.

SALES MARKETS

The main sales markets for the SICK Group are industrialized countries as well as those growth regions that are on the cusp of industrialization, particularly in Asia and Latin America. SICK extends its regional reach by setting up new sales companies and by continuously maintaining a global network of distributors. Alongside innovation, SICK's regional proximity to its customers is one of its main competitive advantages. The distribution center in Buchholz near Waldkirch ensures rapid deliveries to the sales and service companies worldwide.

EXTERNAL FACTORS INFLUENCING THE BUSINESS

The main external factors influencing the business of SICK include changes in economic developments, sector-specific framework conditions, and currency effects. These are explained below in "Macroeconomic environment." Other external factors influencing the business and their effects, for example technological progress, more intense competition, changed price levels, changing legal framework conditions and norms, changes in the prices of commodities and intermediate products as well as exchange rate fluctuations, are presented in the risk and opportunity report.

ADVANTAGES OF SICK'S BUSINESS MODEL

SICK's business model is essentially based on the continued success development of an independent market for sensor systems. Smart, high-quality products and solutions can only be offered and efficiently implemented or produced by means of industrial automation by companies that focus entirely on sensor-based solutions. In line with the "Sensor Intelligence." claim, SICK thus focuses on sensor technology for industrial applications while exploiting all possibilities and facets that sensor technology offers. These possibilities, in particular in the form of higher-performance processors and storage technologies as well as the integration of application knowledge in the software of individual products, ensure that SICK sensors are moving more and more towards sensor intelligence. Such intelligence is essential in order to move the digitalization of industrial manufacturing and logistics processes forward towards a Smart Factory, which is rapidly gaining ground as part of Industry 4.0. Industry 4.0 thus promises further growth potential for SICK.

In order to make the most of the many opportunities for growth that are available, SICK founded a number of different cross-divisional start-up initiatives in the fiscal year 2018. These initiatives focus on three fields:

- Infrastructure: the secure use of digital sensor data
- Applications: software-based solutions using sensor data
- Customer services: the expansion of customer services based on digital data

The start-up initiatives operate largely independently within the existing group structure, but make use of the wide range of know-how that is available and the strengths of SICK's existing organization. The aim is for the high momentum of the start-up initiatives to boost the existing industrial automation business and open up new prospects for growth.

As with the development of the start-up initiatives, it is essential that SICK's products are compatible with as many automation systems as possible and that they have the ability to communicate with overarching cloud levels. Consequently, two of SICK's focal areas of development in its core expertise of industrial automation are currently connectivity and data sovereignty. SICK is involved in the industry bodies of various associations in order to promote the continued development of open and defined interfaces. The Group also monitors other technologies and trends considered relevant for the future development of the SICK Group and, if they are considered important, incorporates these in development or cooperation processes.

In addition to the business with smart products, SICK's business model is based on developing solutions in the systems business and individual customer service support. In its systems and services business, SICK provides customers with complex solutions that go beyond the individual product and that have been customized in line with the respective requirements. As a highly innovative company with a global presence and its own production, development, and sales activities in all important growth regions, SICK is in a good position to be able to benefit accordingly from the growth of the sectors and markets.

COMPANY STRATEGY

Independence as a company, a high degree of innovation, and a leading competitive position with sustainable, continuous growth are the core aims of the SICK Group's strategy – both in the key regions and product areas.

SICK reinforces its position as a highly innovative company through substantial spending on research and development. SICK is constantly offering its customers new products and applications. This reinforces local relationships and the Group's position on the global market. SICK consistently uses the opportunities presented by the ongoing digitalization of production and business processes as part of Industry 4.0 to reinforce its leading position on the market and its competitiveness. The continuous improvement of its organizational structure and internal processes, and its strong appeal as an employer, are also key aspects of its corporate concept.

The Supervisory Board fully supports the Executive Board's strategy of comprehensively aligning the SICK Group with the requirements of ongoing digitalization so that it can play a leading role in the development of the digital world of Industry 4.0.

The financial parameters for measuring the successful implementation of the company's strategy are sustainable and continuous growth, strong operating profitability, and a good return on equity. This is because only a substantial return on shareholders' capital ensures that the company is free to act in the long term.

GROWTH OF SALES AND EBIT MARGIN

	2018	2017	2016	2015	2014
Sales (EUR million)	1,636.8	1,511.6	1,361.2	1,267.6	1,099.8
EBIT margin (%)	7.2	9.8	10.9	10.2	9.4
Return on equity (%)	14.7	21.7	24.9	25.2	22.9

By consistently implementing a strategy focusing on innovation, growth, and profitability, SICK has been able to significantly increase its sales while maintaining good operating profitability and a high return on equity in the last five years.

Research and development

The future of industry is shaped by the increasing networking of production and control processes in complex mechanical environments (Industry 4.0). The opportunities from using data in a better and more targeted way to produce and deliver more efficiently, with greater flexibility, using fewer resources, and to a higher standard of quality depend to a large extent on the reliability and robustness of the data inputted into many process chains.

Back in 2004, SICK adapted to the changes in the world of automation, which were only just starting to appear at the time. Since then, the company's "Sensor Intelligence." claim has expressed its focus on technical intelligence.

With sensor intelligence, the company's focus extends well beyond the application of mechanical automation technology. Particular attention will be given in the next few years to expanding the existing product portfolio, the networking capacity of sensor systems in the context of Industry 4.0, and the subject of data sovereignty.

In the fiscal year 2018, SICK responded to the growing importance of the recording, analysis, and use of data to manage industrial processes by establishing a number of start-up initiatives.

These initiatives focus on the three fields of infrastructure (the secure use of digital sensor data), applications (the best possible incorporation and connection of sensors and software) and customer services (the expansion of customer services based on digital data).

They combine the existing wide range of know-how and the strengths of the existing SICK organization with the visionary mindset and actions of a start-up culture. The aim of the start-up initiatives is to quickly make Industry 4.0 beneficial using SICK's expertise, offering customers additional added value from the improved use of data.

In view of the significant technological possibilities and competition, substantial investment is needed in research and development (R & D) in order to secure and strengthen the leading market position. Only a financially strong and innovative group can afford this. The main aim of the innovation process at SICK is to offer solutions consisting of sensor products, systems, or services that help customers improve their productivity and flexibility while also conserving resources. Together with the start-up initiatives founded in 2018, we are in a very good position to benefit extensively from the ongoing networking and digitalization of industrial production (Industry 4.0).

As in past years, SICK spent considerable amounts on R & D activities in the fiscal year 2018. Overall, the SICK Group expanded its R & D activities in the fiscal year 2018, and spent EUR 192.5 million to achieve its R & D goals (2017: EUR 169.4 million). R & D expenses include amortization of development expenses capitalized in prior years of EUR 7.1 million (2017: EUR 7.8 million). EUR 9.3 million (2017: EUR 8.6 million) of the total expenses were capitalized in the fiscal year 2018. The total expenses for the start-up initiatives reached the low double-digit millions in 2018.

INVESTMENT IN INNOVATION

	2018	2017	Change
Sales (EUR million)	1,636.8	1,511.6	8.3%
R & D expenses (EUR million)	192.5	169.4	13.6%
R & D expenses of sales (%)	11.8	11.2	0.6 percentage points

The high expense ratio for R & D of 11.8 percent (2017: 11.2 percent) of sales, including expenses for Industry 4.0, underscores the SICK Group's capacity for innovation. R & D activities are still focused in the German locations.

Thanks to the intense R & D activities, SICK has a highly diversified product portfolio that meets the requirements of completely different industries and also serves markets ranging from those that respond quickly to cyclical fluctuations to those that are slower to respond. This makes it easier for SICK to compensate for any uneven development in its target industries, provoked for instance by cyclical swings, and achieve growth that is above average for the market.

Further impetus for R & D comes especially from intensive dialog with customers, universities, and research institutes. Gearing the global sales organization consistently to the industries served also creates a basis for understanding customers' requirements and

translating these into new products, system solutions, and service concepts. An average of 1,239 employees contributed to translating innovative ideas into marketable products in the fiscal year 2018. This figure is up 11.2 percent on the prior year. Additional employees for R & D activities were hired around the world, but mainly at the German locations.

PRODUCT INNOVATIONS

The fiscal year 2018 saw the SICK Group drive forward innovations in all product areas, thus supplementing its widely diversified portfolio in key areas.

OVERVIEW OF THE MOST IMPORTANT INNOVATIONS

Product innovation	Business field	Description	Benefit to customers
Small and compact photoelectric sensors W16, W26	FA, LA	<ul style="list-style-type: none"> New generation of optoelectronic sensors with an innovative operation concept and LED feedback Particularly for use in warehousing and materials handling 	<ul style="list-style-type: none"> Simple sensor configuration in seconds by IO-Link or Bluetooth High reliability of detection for objects with different optical properties
FlexChain switching automation light grids	LA	<ul style="list-style-type: none"> Flexible, expandable light grid system with up to 60 sensors in cascade that can be positioned individually Central control via FlexChain Host Analysis of sensor data in the system or direct transmission of raw data Process stability thanks to diagnostic function 	<ul style="list-style-type: none"> Maximum flexibility of positioning and installation High reliability of detection and measurement, and consistent system and machine availability
outdoorScan3 safety laser scanner	LA	<ul style="list-style-type: none"> First outdoor safety laser scanner in the world to be certified in accordance with IEC 62998, with outdoor safeHDDM® scanning technology Used for the safe navigation of driverless transport systems 	<ul style="list-style-type: none"> Securing of stationary and mobile applications in different weather conditions without additional safety equipment Smooth linking of production and logistics processes, including outside production halls
DeTec4 Prime2 safety light curtain	FA, LA	<ul style="list-style-type: none"> Light grid with NFC (near field communication) and IO-Link interface Used to secure danger zones, access points and hazards 	<ul style="list-style-type: none"> Simple, software-free set-up and configuration High availability: supports remote and on-site diagnosis via smart phone
microScan3 Pro longrange safety laser scanner	FA, LA	<ul style="list-style-type: none"> Safety laser scanner for mobile applications with the largest protective field range on the market (nine meters) 	<ul style="list-style-type: none"> High degree of precision Detection of small objects at long distance
Rotating HIPERFACE DSL® EDS/EDM35 motor feedback systems	FA	<ul style="list-style-type: none"> System for use in high-precision, dynamic applications such as in the packaging industry or machine tools Status monitoring and use duration histogram: data on temperature, speed, and revolutions is stored for the entire life of the device 	<ul style="list-style-type: none"> Very high performance for high-precision, safety-oriented servo motors Different degrees of performance with a single design allow system providers to implement a large number of applications with just one type of encoder
TiM361S safety-oriented 2D LiDAR sensor	FA, LA	<ul style="list-style-type: none"> Collision protection sensor for vehicles and suspension tracks First safety-certified 2D LiDAR sensor with performance level B Proximity detection in automated high bay warehouses Securing of sculptures and paintings 	<ul style="list-style-type: none"> Enhanced personal safety Low operating costs and simple set-up Flexible application thanks to compact dimensions Long battery life when used with battery-powered vehicles Monitoring of large areas with just a single scanner

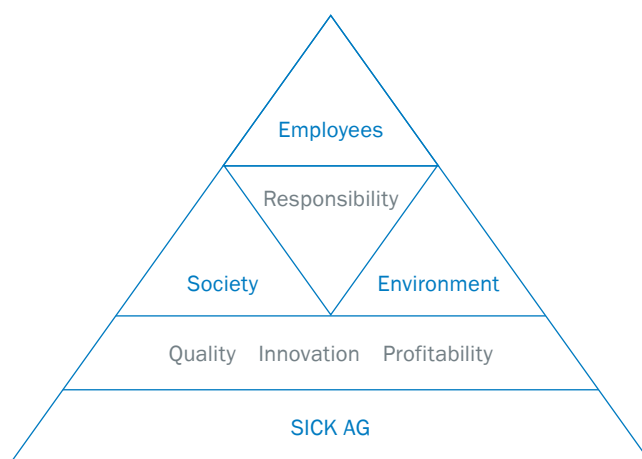
Product innovation	Business field	Description	Benefit to customers
Ranger3 3D vision camera	FA	<ul style="list-style-type: none"> 3D vision camera as the future standard of 3D image processing with ROCC (rapid on-chip calculations) technology To measure 3D data of objects regardless of color, contrast, the optical appearance of surfaces or ambient brightness 	<ul style="list-style-type: none"> Simple integration into image processing packages High speed and precision of measurement
VMS4200/5200 track-and-trace system	LA	<ul style="list-style-type: none"> System for the remote, dynamic measurement and location of objects in various different transportation systems 	<ul style="list-style-type: none"> Calibrated calculation and postage verification using a certified measurement system for packages and other consignments of goods Increased throughput thanks to remote, dynamic measurement of objects almost irrespective of their shape
BPS body positioning system	FA	<ul style="list-style-type: none"> System for determining the absolute position of vehicle bodies using laser triangulation System consists of four camera modules and a control/monitoring unit 	<ul style="list-style-type: none"> High-precision, contactless fine positioning for automated production
FLAWSIC100 mass flow measurement devices Flare-XT	PA	<ul style="list-style-type: none"> Devices for the reliable measurement of gas flow in flare gas applications using ultrasound technology Intuitive FLOWgate™ operating software; i-diagnostics™ for the self-monitoring, simple checking, and preventive maintenance of the system 	<ul style="list-style-type: none"> Maximum plant availability Compatible with current and future communication architectures Reliable measurements at extreme speeds and with fluctuating gas compositions thanks to flow-optimized sensor design
FieldEcho software tool	FA, LA	<ul style="list-style-type: none"> Software tool for the parametrization and monitoring of all IO-Link devices in a plant throughout the entire life cycle 	<ul style="list-style-type: none"> Platform-independent access to IO-Link device data Automatic detection of IO-Link devices
SICK AppSpace ecosystem	FA, LA	<ul style="list-style-type: none"> Software for creating and administering tailored application solutions Development of the SICK AppStudio and SICK AppManager software tools 	<ul style="list-style-type: none"> Simple operation Faster solution of applications Simplified collaboration between developers and users

Sustainability

SICK's concept of sustainability comprises the company's responsibility for its employees, the environment, and society. Only sustainable and transparent corporate governance that takes ecological and social factors into consideration guarantees long-term economic success. As a family-owned company, SICK has a long tradition of sustainability, which is both a matter of course and an integral component of the company's philosophy and culture.

This is based on SICK's high standard of quality, consistent innovation, and solid profitability. This is the only way that SICK can live up to its entrepreneurial responsibility as an independent, family-owned company.

CORPORATE RESPONSIBILITY AT SICK



EMPLOYEES

SICK's employees are at the center of its success. Their expertise and collaboration within the company's network are the foundation for sustainable growth and a key USP. Consequently, both the corporate and HR strategies ultimately lead back to their expertise. This is because innovation and success in business are the product of the work of dedicated, inspired, and effective employees. Both can only thrive if the groundwork has been laid for respectful and fair coexistence and a trusting work atmosphere. This includes creating an environment that fosters pride, motivation, identification, and health among employees.

In addition to this trusting coexistence, the key elements of the company's culture are opportunities for development, the development of skills, a balance between supporting and challenging employees, and the numerous opportunities to get involved outside their own work context and assume responsibility – guided by the conviction that tasks and abilities should match as closely as possible. Only then are the conditions in place for employees to fulfill their individual potential and contribute their skills.

Finding, integrating, and retaining the right employees is very important. In order to achieve this, it is necessary for the promises of the strategy and HR policy to be made visible and tangible in the culture as practiced. Actively influencing the workplace culture is therefore particularly important, and is expressed by a transparent, comprehensible, and consistent HR policy.

HR POLICY AND DEVELOPMENT

SICK's HR policy is characterized by its vision with its core values of "Independence," "Innovation," and "Leadership." "Leadership" not only refers to technological leadership and leadership of the market, but also to the development of the corporate and management culture.

The actions of SICK's people around the world are based on the same principles and values. Increasing globalization makes values-based management, networking, and constructive cooperation more and more important but also more challenging. SICK is guided by its principles of management and collaboration, which provide a binding framework that applies to all employees and managers around the world.

High workplace quality, trust, passion, and teamwork have been firmly entrenched in SICK's vision and corporate culture since the company was established more than 70 years ago. Our employees practice these values every day, and in so doing lay the foundation for commercial success.

HR work covers a wide variety of topics. The following were some of the key themes in the fiscal year 2018:

- Building up and managing skills at all specialist and management levels in preparation for SICK 2.0 and employee retention
- Developing the culture of leadership and collaboration
- The organizational development of the capacity to adapt and change
- Strategic HR and succession planning
- Talent management, involving the definition of potential and career paths
- Recruitment, including successful onboarding
- The development of performance management

The clear goals of this are to reinforce the skills necessary for inter-unit collaboration in a global setting and to develop suitable organizational methods in order to best enable the company to overcome the challenges of digitalization.

In accordance with the principle of "We acknowledge and recognize performance," SICK offers extensive non-tariff compensation in addition to the basic, collectively agreed pay, such as profit-sharing, variable remuneration components, performance bonuses, compensation for inventions made during employment, and a company pension scheme. This range of services is complemented by flexible working hours models, mobile working, flextime and working time accounts for personalized life phase planning, as well as active healthcare services and needs-based training. The core of the culture of recognition, however, is a practiced culture of feedback that is heavily promoted by HR work. This is because recognizing good performance is above all characterized by treating each other with respect, in doing so providing space for managers and colleagues to give each other positive feedback.

In connection with the sales growth, the global headcount also increased by 928 new employees in the past fiscal year. At the end of 2018, the headcount at the SICK Group thus totaled 9,737. This was an increase of 10.5 percent in comparison to the end of 2017 (8,809 employees). The increase is in line with projections, or slightly above them if we include the employees for the start-up initiatives. This increase in capacity mainly boosted SICK's capabilities in the fields of R&D and production as well as in its global sales and service organizations.

EMPLOYEES AS OF DECEMBER 31

(by sales regions)

	2018	2017	Change in %
Germany	5,660	5,224	8.3
Europe, Middle East, and Africa (EMEA)	1,809	1,634	10.7
North, Central, and South America (Americas)	910	784	16.1
Asia-Pacific	1,358	1,167	16.4
TOTAL	9,737	8,809	10.5

The average age of SICK's workforce was unchanged in 2018 at 40.2. Despite the large number of new hires, the average length of service only changed marginally on account of the very low fluctuation rate, and stood at 8.5 years (2017: 8.8 years). The percentage of women in the workforce of the SICK Group held virtually steady in relation to the prior year, with women accounting for 32 percent of the workforce and men making up the remaining 68 percent in the past fiscal year. The SICK Group employed 375 trainees as of December 31, 2018 (2017: 351 trainees).

BASIC AND ADVANCED TRAINING

For SICK, life-long learning is not just key to long-term success but also a genuine development opportunity for its employees. One key element of internal training is skills management as an integrated, dynamic HR management system aimed at shaping the transformation of SICK's culture with respect to leadership and collaboration.

The essential principle of "Expertise counts" also expresses a high degree of recognition and appreciation of employees. SICK's skills management system supports the necessary development of specialist, management, and interpersonal skills, particularly against the backdrop of the challenges of the digital revolution. This ensures that every employee has the necessary know-how and skills, and the proper attitude, to carry out their specific tasks. Because SICK places a great deal of confidence in responsibility on the part of its employees, the training services of the internal Sensor Intelligence Academy (SIA) are open to all employees during work hours.

The SIA coordinates needs-based training, and through its wide-ranging services acts as a center of competence for training and life-long learning that increasingly also extends to the Group's international entities, particularly in Asia and the US. It has established itself as a provider of technical and non-technical training. The learning management system facilitates the harmonization and standardization of training processes, and guarantees uniformly high standards of quality. The targeted accrual of knowledge and enablement are gaining in importance as the digital revolution progresses. It is therefore increasingly important to provide employees rapid and simple access to the knowledge and information required at the "point of doing." To this end, the SIA offers efficient learning formats based on new technologies such as web-based training, blended learning, virtual reality and social collaboration learning.

The SIA also offers a wide range of training formats. In addition to conventional, face-to-face training, these include e-learning courses, short videos, and webinars. The aim is to offer digital learning media in support of self-directed learning processes in order to facilitate learning at any time and in any place and thus make learning more effective.

International management training was also intensified in the fiscal year 2018. This was done in particular with respect to dealing with changes, agility, and increasing complexity – key skills given the dynamic development of the requirements imposed by the market and customers.

Another focus of HR work in the fiscal year 2018 was once again on the field of training. Learning in projects and the training of social and methodological skills (off-the-job measures) played a key role in addition to specialist training. This is why SICK offers a range of training that has been specifically tailored to the needs of trainees and cooperative university students. Trainees also have access to the SIA program. In order to promote intercultural skills and prepare them for a position in an international context, cooperative university students are also given the opportunity to complete some of their practical phase or training at a subsidiary abroad.

SICK establishes contact with interested school leavers through educational partnerships with schools, for example in connection with the children's research center that opened in Waldkirch in 2018, the Summer University or the open training days.

In the fiscal year 2018, the international 12-month graduate entry program was expanded (mainly at SICK's engineering division, SensorING). The program's objective and goals are as follows:

- Creating potential junior talent for specialist and project tasks at an early stage
- Supporting medium- and long-term HR planning
- Attracting employees for positions that are difficult to fill and are built up and expanded through internal development
- Building up knowledge across divisions
- Promoting and building up networks (formal and informal)

At EUR 13.1 million, the cost of basic and advanced training and thus of the global addition of skills was therefore 11.0 percent higher in the past fiscal year than in the prior year (EUR 11.8 million). The training offered focuses among other things on building up specialist expertise and promoting skills for efficient, group-wide collaboration.

HEALTH MANAGEMENT AND FAMILY-FRIENDLINESS

Our employees are a key factor in our success, and promoting their professional development and preserving their health is in the best interests of both the employees and the company.

The aim of SICK's active health management system is to make a lasting contribution to the long-term preservation and promotion of the health and well-being of all employees, at work and elsewhere.

That is why we analyze potential detrimental factors and health hazards both at the workplace and in specific work processes. Concepts for solutions are then developed in partnership with employees in order to minimize the risks to health and both preserve and promote employees' health.

The range of services offered to employees includes extensive health promotion programs. These go far beyond what is required by law and are seamlessly integrated in the daily work routine. A variety of operating health promotion measures, such as a company medical service, medical checks, sports working groups, preventive and ergonomics consultations, and the use of comprehensive risk assessments are intended to help maintain employees' health and performance. SICK's employees also receive assistance in emergencies. The company cares for its employees through professional reintegration management following periods of illness, and by offering social care or acute assistance with mental health.

The construction of the family and health center at the Waldkirch facility, which was completed and opened in March 2018, was a major addition to the health management services offered by the company. The core elements are physiotherapy and ergonomic treatments, as well as a wide range of health courses. Treatment by internal doctors is also complemented by orthopedic and GP services. This facilitates the seamless connection of internal and external structures with the aim of offering employees a comprehensive range of services that can easily be linked to working hours and therefore integrated into the working day.

SICK also attaches great value to a holistic, family-based HR policy. The aims of this include facilitating the best possible work / life balance, and therefore improved motivation and job satisfaction among employees. The work / life balance measures on offer were significantly expanded in the reporting year. There are additional childcare spaces available for children aged between six months and six years, as well as flexible afternoon care for schoolchildren. These complement the existing range of services including holiday and emergency care, as well as a number of social events (such as PC taster courses, applicant training, and skiing / snowboarding trips).

Opportunities for flexible working hours planning, mobile working, and part-time arrangements are also an important prerequisite for enabling employees to achieve a work / life balance.

EMPLOYER BRANDING

The growth of sensor technology in the fields of industrial automation and Industry 4.0 is fueling strong demand for well-trained specialists, particularly in the MINT professions (mathematics, IT, natural science and technology). The central aim of employer branding is therefore to position SICK as an employer of choice and bring potential specialists into contact with SICK at an early stage, and to inspire them to work for the company.

In March 2018, SICK AG was again named as one of Germany's best employers. Around 740 companies of all sizes and in all industries throughout Germany took part in the Great Place to Work® competition "Deutschlands Beste Arbeitgeber 2018" (Germany's Best Employer 2018). They subjected themselves to a voluntary assessment by the Great Place to Work® Institute of the quality and appeal of their workplace culture, and the judgment of their own employees. The award not only reflects the company's appeal as an employer, but also the good standing that SICK enjoys among its employees. SICK is constantly working on its appeal as an employer by means of targeted employer branding measures.

DIVERSITY AND EQUAL OPPORTUNITIES

The SICK Group is an international company that attaches great value to diversity and equal opportunities. One of the most important frameworks guiding SICK's activities in this regard is its vision. SICK's values lay the foundation for working together in a global network. They provide a guideline for the everyday activities of each individual.

The concept of diversity is a broad one that relates to a wide range of potential diversity within an organization, for example with respect to gender, age, disability, religion, and culture, as well as the variety of specialisms.

In this sense, the diversity of SICK's employees and the resulting variety of perspectives is crucial to the company's success. The wide range of specialisms, opinions, and perspectives is a resource and also an opportunity to advance the company and reach the right decisions. Managers support employees' ability and willingness to work together globally in order to meet the challenges of a complex, global environment. Curiosity, optimism, and treating each other with respect will help us to successfully overcome our shared challenges.

Collaboration at SICK is based on the trusting and respectful coexistence of people belonging to various different organizations and nations, whose different capabilities and perspectives form the foundation for SICK's success. Agreeing on this coexistence makes it possible for everyone to act in the company's best interests, to build up faith in colleagues' abilities, and to share information and knowledge. The management culture aims to support, encourage, and enable employees so that they can develop the power of their skills, creativity, and potential for joint and responsible implementation that focuses on solutions, results and success. Its principles of management and collaboration also ensure that the culture and actions of employees around the world are based on the same principles and values, given ongoing growth and increasing international networking. Diversity is an issue and motivator for management, employees, and workforce representatives alike. It is for example documented in the authority model, in management models, and therefore also in courses for employees and managers. The inclusion agreement, which was concluded with the aim of promoting equal opportunities and preventing discrimination and the social exclusion of people with disabilities, is further proof of the seriousness with which these issues are being tackled.

SETTING TARGETS FOR THE EQUAL REPRESENTATION OF MEN AND WOMEN IN MANAGEMENT POSITIONS

As part of the company's efforts to achieve equal opportunities, targets were set in 2015 for the equal representation of men and women in management positions.

Effective as of September 30 of the fiscal year 2015, the Supervisory Board of SICK AG set a target of 17 percent of women on the Supervisory Board of SICK AG in accordance with Sec. 111 (5) AktG. As a 'flexible' female quota, this target was to be met or exceeded by June 30, 2017. This percentage was 17 percent on December 31, 2018. The same applies to the target for the percentage of women on the Executive Board of SICK AG, which was set at 0 percent. This target was 0 percent at the end of the reporting period.

Furthermore, effective as of September 30, 2015, the Executive Board of SICK AG set a target of 6 percent pursuant to Sec. 76 (4) AktG for the percentage of women in management positions at the level directly below the Executive Board of SICK AG, i.e., the managers who report directly to members of the Executive Board. This target was to be met or exceeded by June 30, 2017. This share came to 14 percent as of the reporting date. For management positions at the second level below the Executive Board of SICK AG, i.e., the managers who report directly to the first-level managers described above, a target of 6 percent was likewise set effective as of September 30, 2015 that was to be met or exceeded by June 30, 2017. This figure stood at around 15 percent on the reporting date.

ENVIRONMENT

SICK assumes responsibility for the environment as part of its corporate environmental management activities. By this means, SICK continues to pursue the aim of creating measurable ecological added value for the Group through sustainable activity. Measures aimed at reducing our impact on the environment focus on four areas: CO₂ emissions, waste and waste water, the use of materials, and the use and development of SICK products that conserve resources for customers. The aim of this is to make more efficient use of resources and energy, and help protect the environment more and more by actively managing hazardous materials.

As a manufacturing company, energy-efficiency and the constant improvement thereof are key aspects of SICK's long-term environmental protection strategy. The goals and implementation of the sustainability and environmental are defined and monitored by the energy and environmental management function, under the management of a member of the Executive Board.

The three strategic channels for the climate and environmental strategy are: avoid, reduce and optimize.

AVOID

In the field of avoidance, SICK focuses on using renewable energy, improving energy-efficiency, and offsetting unavoidable CO₂ emissions.

Another production process that is relevant to the environment is the use of solvent-based paints. The switch to environmentally friendly water-based paints is being successively pursued. Apart from the CO₂ emissions SICK causes in travel or transport, all other intragroup processes are of little relevance for the environment. All CO₂ emissions that are directly caused and measurable (e.g., through business trips or heat generation) are compensated for in accordance with the highest standards (CDM Gold). SICK tries to select logistics partners that also compensate for their CO₂ emissions wherever possible. Hazardous substances are always stored and used in the collection devices prescribed by water conservation law so that any environmental contamination is prevented in the event of leakage.

REDUCE

The energy-efficiency of the company's buildings and production plants are improved by using modern energy concepts for new buildings, for example in Donaueschingen, and also through the properties of production facilities. Installed measurement systems help identify potential savings.

SICK has a "green car policy" when it comes to the use of company cars. Incentives are offered for using vehicles with below-average CO₂ emissions. A maximum figure for CO₂ emissions applies.

OPTIMIZE

SICK also helps protect the environment by developing products that reduce emissions. These include volume measurement systems that help make the best use of storage space and thus reduce the emissions generated by the transportation of goods. Using markless sensors for the packaging of products allows the material used per label to be cut by up to 5 percent, which translates into up to 1.5 million meters of labeling materials per year per machine.

Encoders for solar and wind energy facilities automatically turn solar modules to face the sun, and position rotor blades in the optimal position to catch the wind. Facility systems for thermal waste recovery allow the optimized operation of systems, thus minimizing emissions of harmful substances.

One ongoing objective of environmental management at SICK is to improve corporate environmental protection above and beyond compliance with official regulations. An internal control system and external audits ensure compliance with environmental and energy management requirements and processes.

A detailed description of the environment-relevant processes including documentation of environmental KPIs is published once a year in the form of a validated environmental declaration.

ENVIRONMENTAL MANAGEMENT ACHIEVEMENTS

SICK consistently implements the goals of its environmental strategy by using renewable energy sources, reducing the consumption of pollutants and supporting conservation projects. The company's achievements to date include the following:

- Certified green electricity has been used at all German facilities since February 1, 2013. This electricity is generated entirely from renewable energy sources. In addition to receiving green electricity, a photovoltaic installation with an output of 1,074 kWp and two combined heat and power (CHP) plants with outputs of 34 kWel and 527 kWel respectively supply power to the facilities in Waldkirch, Reute, and Buchholz. The use of green electricity avoids the emission of around 7,000 tons of CO₂.
- SICK supports climate conservation projects in developing countries in order to offset the environmental impact of business travel and its production facilities in Germany. Supporting climate conservation projects based on the highest standards (CDM Gold) in partnership with atmosfair also saves around 16,000 tons of CO₂ emissions each year.
- The use of solvents for painting sensors has been scaled back considerably in the last four years, and was well below the thresholds of the German Federal Emissions Directive in 2017 with 4.1 tons used in painting and 0.4 tons in glass optics. The consumption of solvents is to be substantially reduced again by making more use of solvent-free paints.
- Pedelecs and electric cars have been made available in Waldkirch and Reute for business journeys since 2011.
- In 2018, deadwood trunks and stone walls were installed as reptile refuges and around 50 rare, ecologically valuable tree species and shrubs including checker trees and sorb trees were planted in Buchholz as part of a pilot project aimed at enhancing biodiversity.
- More than 90 children were also trained as climate ambassadors in Waldkirch in 2018 as part of the Plant for the Planet Academy.

A catalog of further measures to reduce our impact on the environment that runs until 2020 was ratified in the fiscal year 2017. A detailed description of the environmental goals and strategy can be found in the Environmental Statement at: <https://www.sick.com/de/en/corporate-social-responsibility/climate-and-environmental-protection-management/w/csr-environmental-protection/>

RESPONSIBILITY TOWARD SOCIETY

SICK is involved in numerous regional and multi-regional activities around the world aimed at promoting social cohesion, both as a company and through its employees.

SICK supports and promotes regional and social engagement through internal events such as Tech4Teens, Science Days, Girls' Days and activities in schools and daycare centers, with the Red Cross or volunteer firefighters, and by supporting "Jugend forscht." Many of SICK's employees also act as volunteers. SICK is a shareholder in the employment and training company WABE gGmbH, which offers prospects to young men and women with no training.

As part of its efforts in the field of science and training, SICK works closely with universities, colleges, and institutions such as the University of Stuttgart's Institute of Applied Optics. Academic institutions are also supported by means of endowed professorships such as the Gisela and Erwin Sick professorship for micro-optics at the University of Freiburg. SICK is also a member of the Association for the Promotion of Science and Humanities in Germany and the German Academy of Science and Engineering, and a founding member of the International Data Space Association. By supporting and promoting research and teaching, SICK helps keep the standard of innovation high in Germany.

QUALITY, INNOVATION AND PROFITABILITY

SICK is an independent, family-owned company with a focus on growth. The high quality of its products and its capacity for innovation are the foundation for long-term growth and profitability as the core elements of corporate responsibility. That is why these factors are firmly entrenched in the company's strategy, and they are described in more detail in the "Company strategy" and "Research and development" sections.

SICK ensures quality by means of quality assurance measures in product development and its in-house production, which help monitor the individual steps of the production process through to a precisely defined approval process for the production and sale of the products.

Quality assurance agreements are concluded with suppliers. The quality of procured parts is monitored. Strategic partnerships have been entered into with suppliers in order to avoid bottlenecks in procurement. Major suppliers are checked with the help of internal certification. Special processes monitor and control the stockpiling of strategically relevant components.

Quality management in production is complemented by observation in the field following delivery. Quality assurance and monitoring procedures are employed for this purpose.

Audit management is carried out to assess the processes and the quality management. The effectiveness of the measures as a whole is assessed continuously by both internal and external audits.

An information security system based on the internationally recognized ISO 27001 standard was created and introduced in 2017.

CERTIFICATION

All of the SICK Group's relevant production facilities (SICK AG's facilities in Germany, SICK STEGMANN GmbH, Donaueschingen, SICK Engineering GmbH, Ottendorf-Okrilla, SICK Kft., Hungary, SICK, Inc., USA, SICK Sdn. Bhd., Malaysia, SICK MAIHAK (Beijing) Co., Ltd., China), and SICK Vertriebs-GmbH, Düsseldorf, are certified in accordance with the international quality and environmental standards EN ISO 9001 (quality management) and EN ISO 14001 (environmental management).

Individual facilities with particular relevance are also certified in accordance with:

- EN ISO/IEC 80079 – 34 (protection against explosions)
- EMAS (Eco-Management and Audit Scheme)
- EN ISO 50001 (energy management)
- Safety Certificate Contractors (SCC),

SICK AG's facilities in Waldkirch, Reute, and Hochdorf, SICK Vertriebs-GmbH and SICK Engineering GmbH are also certified in accordance with OHSAS 18001 (BG ETEM, protection in the workplace).

You can find out more about SICK's certifications at: <https://www.sick.com/de/en/about-sick/certifications/w/certificates/>

DEVELOPMENT OF NON-FINANCIAL PERFORMANCE INDICATORS

High-quality products and applications, well-trained and motivated employees, and a strong capacity for innovation have a significant impact on the long-term growth that the SICK Group is aiming to achieve. Please refer to the comments in the "Research and development" and "Sustainability" sections of this management report for details of the performance of the key non-financial indicators. The "Report on expected developments" contains statements regarding the anticipated development of non-financial performance indicators in the fiscal year 2019.

REPORT ON ECONOMIC POSITION

Macroeconomic environment

In its current outlook for the global economy (IMF, World Economic Outlook, January 2019), the International Monetary Fund (IMF) expects growth to slow in 2019. Global economic growth is expected to come to 3.5 percent in 2019 (2018: 3.7 percent). The ongoing tariff and trade dispute between the US and China, rising interest rates in the US, uncertainty surrounding the UK's potential exit from the EU without a deal, and persistently high levels of government debt in certain EU states are hampering economic growth. Despite the growing risks, the global economy remains relatively stable at a high level. However, the increasing risks are restricting the potential for growth. Some key economies may have already gone past the peak of their growth. The anticipated pick-up in growth in developing and emerging economies could give the global economy a slight boost in 2020, enabling growth of 3.6 percent.

According to the economic experts of the IMF, global economic growth came to 3.7 percent in 2018, which was down by 0.1 percentage points on the prior year (3.8 percent).

OVERVIEW OF GLOBAL ECONOMIC GROWTH

in %	2020 (expected)	2019 (expected)	2018	2017
Industrialized nations	1.7	2.0	2.3	2.4
USA	1.8	2.5	2.9	2.2
Eurozone	1.7	1.6	1.8	2.4
Germany	1.6	1.3	1.5	2.5
Emerging economies	4.9	4.5	4.6	4.7
Latin America	2.5	2.0	1.1	1.3
Asia	6.4	6.3	6.5	6.5
Global economic growth	3.6	3.5	3.7	3.8

Source: IMF, World Economic Outlook, January 2019

On the international currency exchange markets the US dollar, Turkish lira, Chinese renminbi, pound sterling, Brazilian real and Russian ruble fluctuated significantly relative to the euro.

The global economic trend in 2018 was pushed to the same high level as the prior year by the accelerated growth in the US and Japan as well as the continued growth in the developing and emerging economies. Brazil, South America's biggest economy, also emerged from the recession of recent years in 2018. Growth in Europe slowed in relation to 2017.

The positive economic growth was above all supported by the continuation of strong domestic demand on the whole. Private consumption was boosted by rising pay and the ongoing rise of employment. Risks to the global economy stemmed from the more restrictive monetary policy of the US, the sharp increase in the price of crude oil, increasingly challenging political conditions due to the UK's potential withdrawal from the EU without a deal, increasing protectionism, and above all the trade dispute between the US and China. Overall global economic growth for 2018 was 0.2 percentage points below the figure of 3.9 percent estimated by the IMF in July 2018 (IMF, World Economic Outlook, July 2018).

The **German** economy remained strong in 2018. International trade, household consumption and government spending, and increased investment provided a broad foundation for the growth of the economy. In its November 2018 industry report, the BDI ("Bundesverband der Deutschen Industrie e.V.": Federation of German Industries) reported an approximately 3.5 percent increase in global industrial output in 2018. The mechanical engineering industry (one of the key target markets for SICK's sensors) also saw renewed growth in 2018. In its November 2018 report on the international mechanical engineering sector, the German Mechanical Engineering Industry Association (VDMA) estimated global sales growth of around 3 percent for 2018. For Germany, the VDMA forecasted stronger sales growth of around 5 percent in 2018.

The pace of economic growth in the **Europe, Middle East, and Africa (EMEA)** region slowed in 2018. The economies of the eurozone grew at a much slower rate than in the prior year. Following the recession in 2016, Russia's economic output experienced a modest increase in 2018. The economy of the Middle East and Africa region improved on account of a sharp surge in Saudi Arabia's economic growth.

The US economy grew by 2.9 percent in 2018. This meant that the US remained the driving force behind the economic growth of the **North, Central, and South America (Americas)** region in 2018. Private consumption was boosted by the ongoing recovery of the employment market. The raising of interest rates by the Federal Reserve is likely to put a damper on the economy in 2019, however.

The Chinese economy only grew by 6.6 percent in 2018, which was its lowest rate of growth since 1990. The import tariffs imposed by the US have had a significant impact on exports and industrial output. Severe pollution of the environment and the substantial debts of many Chinese companies also affected the economy negatively. The economic growth of the **Asia-Pacific** region remained essentially strong thanks to a pick-up in India's economic growth and the solid economic performance of the ASEAN states. Japan's economy has stabilized at a low level.

Global economic growth remained robust on the whole in 2018, although the pace of growth slowed noticeably over the course of the year. The 3.7 percent increase in global economic output was 0.2 percentage points short of the International Monetary Fund's initial forecast of 3.9 percent. It also fell short of the growth achieved in 2017 (3.8 percent). The economies of Europe and China in particular cooled significantly.

CONDITIONS IN THE SENSOR TECHNOLOGY INDUSTRY

Sensor technology is a growing industry. Relatively stable global growth, increasing industrialization of the emerging economies and the increasing digitalization and networking of industrial production and supply chains provide the foundation for rising demand for the products and system solutions of the sensor technology industry.

According to a study conducted by the sector association AMA ("AMA Verband für Sensorik und Messtechnik e.V.": AMA Association for Sensors and Measurement), the sales of the German sensor technology industry grew again in 2018, and this industry is likely to maintain its average long-term growth of 6.5 percent.

Course of business

RESULTS OF OPERATIONS

The SICK Group continued to grow in the fiscal year 2018.

The results of operations break down as follows:

CONSOLIDATED INCOME STATEMENT

in EUR million	2018	2017	Change in %
Sales	1,636.8	1,511.6	8.3
Changes in inventory	19.4	15.1	28.5
Own work capitalized	24.5	23.8	2.9
Cost of materials	517.8	450.7	14.9
Gross profit	1,162.9	1,099.8	5.7
Personnel expenses	699.3	639.8	9.3
Depreciation and amortization	62.6	55.7	12.4
Other operating expenses	289.0	259.4	11.4
Other operating income	13.2	9.3	41.9
Net currency income/expense	-7.8	-5.7	36.8
Operating results	117.4	148.5	-20.9
Net investment income/expense	0.1	0.3	-66.7
Earnings before interest and tax (EBIT)	117.5	148.8	-21.0
Net interest income/expense	-4.7	-3.0	56.7
Earnings before tax	112.8	145.8	-22.6
Income tax	30.5	40.7	-25.1
Minority interests	0.6	0.8	-16.4
CONSOLIDATED NET INCOME			
(after minority interests)	81.7	104.3	-21.7

The continued strong profitability shaped business developments. The **EBIT margin** as a percentage of sales amounted to 7.2 percent (2017: 9.8 percent). This meant that the growth anticipated at the start of the year was achieved.

The **net return on sales** came to 5.0 percent, down from 6.9 percent in the prior year. SICK also once again achieved a high rate of interest on capital employed (**return on equity**) in 2018 (14.7 percent). This provides clear confirmation of the business model's value.

KEY PROFITABILITY FIGURES

	2018	2017	Change
EBIT (EUR million)	117.5	148.8	-21.0%
EBIT margin (%)	7.2	9.8	-2.6 percentage points
Consolidated net income (EUR million)	81.7	104.3	-21.7%
Net return on sales (%)	5.0	6.9	-1.9 percentage points
Return on equity (%) ¹	14.7	21.7	-7.0 percentage points

¹ Return on equity = consolidated net income / (equity less consolidated net income)

ORDER BACKLOG

Demand for sensor technology products and applications was once again highly dynamic in 2018. The continuation of the good trend for orders received was due to rising demand combined with the growth of the global economy as well as the launch of new products and system solutions. The volume of **orders received** totaled EUR 1,701.0 million, up 10.3 percent year on year (2017: EUR 1,542.3 million).

	2018	2017	Change
Sales (EUR million)	1,636.8	1,511.6	8.3%
Orders received (EUR million)	1,701.0	1,542.3	10.3%
Book-to-bill ratio (%)	103.9	102.0	1.9 percentage points

The ratio of orders received to sales (book-to-bill ratio) of 103.9 percent for the fiscal year 2018 was up 1.9 percentage points on the prior year (102.0 percent). This bodes well for future business developments.

TREND FOR SALES

Group sales also continued to grow, supported by the increase in orders received. They amounted to EUR 1,636.8 million in the fiscal year 2018 – an increase of 8.3 percent compared to the prior year (2017: EUR 1,511.6 million). Sales were negatively impacted by currency effects. If the average exchange rates for the prior year had remained unchanged, sales would have been around EUR 45 million higher and growth would have amounted to around 11 percent. This means that SICK has continued to perform well and achieve above-average sales growth in relation to the growth of the German mechanical engineering sector as a whole. The VDMA's forecasts put growth for 2018 at roughly 5 percent.

Thanks to its strong competitive position around the world, the growth of the SICK Group was once again broad-based in the fiscal year 2018. In addition to the presence on the established markets, the sales activities in the growth regions around the world also help to increase sales further. The increase in sales exceeded the projected sales figures for 2018, which foresaw growth in the mid to high single-digit percentages.

Sales growth in the four sales regions was as follows:

SALES BY REGION

in EUR million	2018	2017	Change in %
Germany	317.7	313.6	1.3
Europe, Middle East, and Africa (EMEA)	597.6	550.9	8.5
North, Central, and South America (Americas)	353.1	320.8	10.1
Asia-Pacific	368.4	326.3	12.9
TOTAL	1,636.8	1,511.6	8.3

Sales rose again in the Group's domestic market of **Germany**, but only slightly, falling short of the growth forecast at the start of the year. SICK's performance in Germany was generally hampered by the slowing of economic growth in SICK's domestic market. Customers in the automotive and intra- / transport logistics sectors in particular scaled back their investment in the fiscal year 2018. On the whole, the SICK Group's sales in the region nevertheless rose 1.3 percent year on year.

The **Europe, Middle East, and Africa (EMEA)** sales region saw an 8.5 percent increase in sales. This increase surpassed the forecast for mid-range single-digit percentage growth. Particularly strong impetus for growth came from every Scandinavian country in the fiscal year 2018, where outstanding and sustainable growth was achieved in the fields of transport logistics and process automation in particular, for example in connection with the measurement of shipping emissions. Growth in the countries of Southwest Europe was in line with expectations. Demand there among customers in the oil and gas industry was muted in the field of process automation in particular. Encouraging growth was achieved in Turkey in euros despite significant fluctuations in the value of the Turkish lira.

Sales in **North, Central, and South America (Americas)** grew 10.1 percent. This clearly exceeded the forecast of sales growth in the mid-range single digits. This encouraging growth was mainly driven by rising demand from customers in the US. The particularly successful business with US customers in the fields of intra- / transport logistics and also the oil and gas industry was maintained. On the whole, the highly encouraging growth in the region was impacted by exchange rate effects.

Growth in the **Asia-Pacific** region was highly dynamic again. With growth of 12.9 percent, the increase in sales was once again in the double digits in 2018. This meant that the forecast for growth was met. There was another significant increase in the volume of business in China – with customers in all sectors. Sales also rose sharply in Japan, Singapore, and Taiwan. The positive sales growth was impacted throughout the Asia-Pacific region by exchange rate effects, and in particular the depreciation of the Chinese renminbi in relation to the euro.

COSTS

The main expense items rose in line with expectations on the whole in the fiscal year 2018. Above-average increases were mainly seen in the cost of materials, depreciation and amortization, and other operating expenses. The most important expense items in the income statement changed as follows:

KEY EXPENSE ITEMS

in EUR million	2018	2017	Change in %
Cost of materials	517.8	450.7	14.9
Personnel expenses	699.3	639.8	9.3
Depreciation and amortization	62.6	55.7	12.4
Other operating expenses	289.0	259.4	11.4

At EUR 517.8 million, the **cost of materials** was 14.9 percent higher than in the prior year (2017: EUR 450.7 million), which was disproportionately higher than the 8.3 percent growth of sales. In addition to currency effects and the product mix, this was due to a sharp increase in prices on the procurement markets (particularly for electronic components). Signs of overheating in the semiconductor market also led to extreme bottlenecks. This resulted in increased procurement activities in hotspot markets, which placed an additional burden on the cost of materials. As a result, the ratio between the cost of materials and sales rose from the extraordinarily low figure of 29.8 percent for 2017 to 31.6 percent.

Personnel expenses saw a rise of 9.3 percent to EUR 699.3 million (2017: EUR 639.8 million). This can primarily be attributed to an increase in the global headcount. New employees were hired in operating production units in particular, as well as the R&D, Sales, and Service areas. The increase also includes the employees for the start-up initiatives.

Depreciation and amortization reflect the increase in investment in past fiscal years: investment in 2018 once again focused on building measures and production facilities, above all including various

different major construction measures in Germany and other European countries. At EUR 62.6 million, depreciation and amortization in the fiscal year 2018 was 12.4 percent higher than in the prior year (2017: EUR 55.7 million).

Other operating expenses rose at a much higher rate than sales, amounting to EUR 289.0 million (2017: EUR 259.4 million). The 11.4 percent increase can be attributed to an increased volume of purchased services, particularly for external development contracts as well as increases in capacity in connection with R&D and IT projects. Travel expenses and expenses for repair and maintenance also rose. **Other operating income** amounted to EUR 13.2 million. This was a 41.9 percent increase in comparison to the fiscal year 2017. Income mainly stemmed from the reimbursement of costs by third parties. The **net balance of other operating income and other operating expenses** rose from EUR 250.1 million (2017) to EUR 275.8 million in the past fiscal year. This is 10.3 percent more than in the prior year.

The **net currency expense** amounted to EUR -7.8 million (2017: EUR -5.7 million) due to unfavorable changes in the exchange rates of the relevant currencies, including the Chinese renminbi, the US dollar, and the Turkish lira in particular.

Net investment income fell from EUR 0.3 million in the past fiscal year to EUR 0.1 million.

Earnings before interest and taxes (EBIT) fell sharply in the fiscal year 2018, as anticipated. The resulting trend mainly reflects the planned increase in structural expenses to secure the future of the company. Another key factor were the extraordinary measure to secure the ability to make deliveries in light of extreme bottlenecks in the procurement markets. **Earnings before interest and taxes (EBIT)** of EUR 117.5 million were recorded in total, which was a EUR 31.3 million decrease on the prior year (2017: EUR 148.8 million).

Net interest expense fell from EUR -3.0 million to EUR -4.7 million in the past fiscal year on account of the increase in financial debt.

The **tax rate** of 27.0 percent was down slightly compared to the prior year's figure of 27.9 percent. The Group's **tax expense** amounted to EUR 30.5 million in the past fiscal year (2017: EUR 40.7 million).

After deducting the tax burden, the share in the **consolidated net income** that is attributable to the shareholders of SICK AG thus amounts to EUR 81.7 million. This constitutes a 21.7 percent decline on the prior-year level (2017: EUR 104.3 million).

NET ASSETS

SICK's net assets remain very solid. **Total assets**, which increased by 18.7 percent to a total of EUR 1,265.7 million, reflect the ongoing growth of operating and investing activities in 2018 (2017: EUR 1,066.2 million). The structure of the company's assets is as follows:

CHANGES IN ASSET STRUCTURE

in EUR million	2018	2017	Change
Assets			
Non-current assets	458.6	408.8	12.2%
of which property, plant and equipment	(353.1)	(309.4)	14.1%
Current assets	807.1	657.4	22.8%
of which cash and cash equivalents	(21.2)	(20.5)	3.4%
TOTAL ASSETS	1,265.7	1,066.2	18.7%
Equity and liabilities			
Equity	635.6	584.4	8.8%
Debt capital	630.1	481.8	30.8%
of which non-current liabilities	(168.3)	(173.8)	-3.2%
TOTAL EQUITY AND LIABILITIES	1,265.7	1,066.2	18.7%
Net debt	210.0	91.4	129.8%
Equity ratio (%)	50.2	54.8	-4.6 percentage points

Non-current assets fell by 12.2 percent to EUR 458.6 million (2017: EUR 408.8 million). The increase in **property, plant and equipment** was an important factor in this regard, which rose by 14.1 percent, from EUR 309.4 million to EUR 353.1 million. This was mainly due to investment in innovative production facilities and buildings at the Group's German and European locations. **Intangible assets** amounted to EUR 67.9 million, roughly on a par with the prior year (2017: EUR 67.9 million). **Deferred tax assets** stood at EUR 31.8 million, up 17.8 percent on the end of the prior year (2017: EUR 27.0 million).

The continued growth of business activities over the course of the reporting year also resulted in a considerable increase in the volume of **current assets**. These rose by 22.8 percent to EUR 807.1 million (2017: EUR 657.4 million). **Inventories** amounted to EUR 380.4 million as of December 31, 2018, which was 30.1 percent higher than at the end of the fiscal year 2017 (EUR 292.4 million). In addition to increased prices for the procurement of inventories, this was due to a sharp increase in minimum inventory levels and project

inventories in order to be able to safeguard the highest standards of quality with respect to the ability to make deliveries and delivery reliability – even with a sharp increase in replacement times and in light of the substantial orders received. As a result, Days of Inventory Outstanding (DIO) increased by 14 days to 84 days (2017: 70 days). In line with the rise in business activity, **trade receivables** also increased at a disproportionately high rate of 16.0 percent to EUR 334.4 million (2017: EUR 288.3 million). Days of Sales Outstanding (DSO) rose by five days to 74 days as of the end of the year (2017: 69 days). **Other assets** grew by 12.6 percent from EUR 51.6 million to EUR 58.1 million. The volume of **cash and cash equivalents** amounted to EUR 21.2 million (2017: EUR 20.5 million).

On the equity and liabilities side of the consolidated statement of financial position, the SICK Group's equity rose to EUR 635.6 million due to the increase in earnings and the reinvestment of profits. This constitutes an 8.8 percent rise on the prior-year level (2017: EUR 584.4 million). The **equity ratio** remained high at 50.2 percent (2017: 54.8 percent).

As a result of the reduction of non-current financial liabilities by EUR 8.7 million to EUR 76.3 million (2017: EUR 85.0 million), **non-current liabilities** fell as planned in the fiscal year 2018, coming to EUR 168.3 million as of the reporting date (2017: EUR 173.8 million). **Non-current provisions and other liabilities** rose slightly to EUR 90.1 million (2017: EUR 86.6 million). This is once again due to the increase in pension provisions, among other things. For information on the nature, terms to maturity, currency, and interest rates of liabilities, including their main terms and conditions, as well as information on undrawn credit lines available, reference is made to the comments in G. (36) "Financial risk management" in the notes to the consolidated financial statements.

The increase in current financial liabilities and the ongoing growth of business activities in 2018 resulted in a significant, 50.0 percent increase in **current liabilities** to EUR 461.8 million (2017: EUR 307.9 million). Within the financing structure, **current financial liabilities** rose sharply to EUR 154.9 million (2017: EUR 26.8 million) on account of investment in working capital. Within **current trade payables**, payments received on account were reallocated to the "contractual liabilities" statement of financial position item, which was reported separately for the first time. As a result, current liabilities amounted to EUR 93.3 million (2017: EUR 127.1 million) and contractual liabilities stood at EUR 49.0 million as of December 31, 2018. **Other current liabilities** remained almost unchanged at EUR 124.1 million (2017: EUR 121.2 million). **Other current provisions** also largely held steady at EUR 21.6 million (2017: EUR 20.8 million). **Tax liabilities**, on the other hand, underwent a significant year-on-year increase of 57.5 percent to EUR 18.9 million (2017: EUR 12.0 million).

The increased volume of business and strategic stockpiling in certain regions also led to a significant increase in current trade receivables and inventories. This increase was not offset by the increase in current liabilities. This caused **working capital** (inventories + trade receivables – trade payables – contractual liabilities) to increase by 26.2 percent to EUR 572.5 million (2017: EUR 453.5 million). As a result, Days of Working Capital (DWC) also increased by 18 days to 126 days (2017: 108 days).

Net debt increased from EUR 91.4 million in the fiscal year 2017 to EUR 210.0 million as a result of the growth of business activities and increased investment in property, plant and equipment.

FINANCIAL POSITION

The financial position reflects the sharp fall in operating cash flow and the high level of investment in SICK's forward-looking global market position. It breaks down as follows:

ABRIDGED STATEMENT OF CASH FLOWS

in EUR million	2018	2017	Change
Cash flow from operating activities	20.2	101.8	-80.1%
Cash flow from investing activities	-108.0	-95.4	13.2%
Free cash flow	-87.8	6.4	EUR -94.2 million
Cash flow from financing activities	88.7	-16.0	EUR 104.7 million
Net increase (decrease) in cash and cash equivalents	0.9	-9.6	EUR 10.5 million

Cash flow from operating activities came to EUR 20.2 million (2017: EUR 101.8 million) and was influenced by a significant increase in the amount of working capital required.

Cash flow from investing activities totaled EUR -108.0 million for the fiscal year 2018, which is an increase of 13.2 percent (2017: EUR -95.4 million). Most of this amount stemmed from another significant increase in investments in property, plant and equipment (EUR 89.4 million) as well as in intangible assets (EUR 17.8 million).

Cash flow from financing activities totaled EUR 88.7 million in the fiscal year 2018 (2017: EUR -16.0 million). Cash and cash equivalents increased by EUR 0.9 million overall (2017: decrease of EUR -9.6 million).

Despite the increased net debt of EUR 210.0 million (2017: EUR 91.4 million), the SICK Group's financing remains solid with a debt-equity ratio of 33.0 percent (2017: 15.6 percent) and an equity ratio of 50.2 percent (2017: 54.8 percent).

FINANCIAL SOLIDITY

in EUR million	2018	2017
Financial liabilities	231.2	111.9
Cash and cash equivalents	21.2	20.5
Net debt	210.0	91.4
Equity	635.6	584.4
Debt-equity ratio (%)¹	33.0	15.6
Equity ratio (%)²	50.2	54.8

¹ Ratio of net debt to equity

² Ratio of equity to total assets

REPORT ON THE PERFORMANCE OF THE SICK GROUP IN THE FISCAL YEAR 2018 IN COMPARISON TO THE FORECAST

The SICK Group generated sales of EUR 1,636.8 million in the fiscal year 2018. The operating return based on the EBIT margin (the ratio between earnings before interest and taxes on the one hand and sales on the other) came to 7.2 percent. This means that the SICK Group achieved its projected targets for sales and earnings on the whole. The forecast for non-financial performance indicators (headcount and R & D expenditure) was also met.

	ACTUAL figure for 2018	ACTUAL figure for 2017	Change	Forecast from the 2017 group management report
Group sales (in EUR million)	1,636.8	1,511.6	8.3%	Mid-range to high single-digit percentage increase in sales
EBIT margin (%)	7.2	9.8	-2.6 percentage points	Down year on year
Employees	9,737	8,809	10.5%	High single-digit percentage growth
R & D investment and expenditure (EUR million)	192.5	169.4	13.6%	Disproportionately strong increase

Overall assessment

The business development in 2018 remained encouraging, and met expectations on the whole with respect to the growth of sales and earnings. As in past fiscal years, the Group's net assets, financial position and results of operations remain solid, which forms a good foundation for the further expansion of business activities and thus further growth for the Group, particularly in light of the challenges of digitalization and Industry 4.0.

RISK AND OPPORTUNITY REPORT

Risk and opportunity policy

Weighing up and entering into opportunities and risks is part of the Group's business success. The risk management function helps the Executive Board and management to effectively monitor and control risks and to fully exploit business opportunities and therefore potential offered by the business.

Risk management is firmly incorporated into many of SICK's corporate processes and is embedded in an opportunity and risk cycle that comprises the central and decentralized planning, management, and control processes and follows uniform group standards. The aim is to enhance the value of the company in the long term.

Risk and opportunity management system

SICK's risk and opportunity management system is based on the understanding that risks must form part of daily business if we want to be able to take advantage of opportunities. SICK therefore conducts active opportunity management in which business opportunities are determined as part of the Group's planning, and the exploitation of opportunities is set out by management in the form of detailed strategic, medium-term, and operating planning. The risks stemming from SICK's business activities and opportunities are described, evaluated, managed and minimized by means of differentiated processes and procedures as part of the Group's risk management activities. SICK identifies the serious risks in particular using special processes, and has integrated various different risk processes in order to identify a number of operating risks. This allows us to influence strategic, operating, financial, and compliance-related targets to a significant degree.

The Executive Board is ultimately responsible for the efficient management and control of risks and opportunities. All members of management reporting directly to the Executive Board are also responsible for managing the opportunities and risks within their areas of responsibility. Strategic opportunities and risks are also monitored in close partnership with the Supervisory Board.

SICK distinguishes between six categories of risk that can affect the Group or one or more group entities: customer / market risks, force majeure, management risks, personnel risks, financial risks, and process risks.

The first two risk categories mainly materialize as exogenous factors, such as competition-related or economic developments. In this case they are treated as strategic risk factors. The other risk categories comprise risks that mainly impact operations. The opportunities relate to SICK's main strategic and operating categories, such as stronger global economic growth, digitalization and Industry 4.0, internationalization, substantial investment in research and development, very solid financial ratios and strong earnings power.

SICK's management use all processes and features contained in the risk and opportunity management system to control all risks and opportunities as well as the associated business decisions from the business processes of all group entities and companies as well as SICK AG itself. Risks are assigned to one of four risk levels:

Risk level	Type of risk	Details
A	Substantial risk	Risks that pose a direct threat to the ability of the company or its entities / companies to continue as a going concern
B	Severe risk	Risks that do not pose an existential threat but have the potential to cause significant damage
C	Potential risk	Risks that require special measures to eliminate and have the potential to incur substantial costs
D	Latent risk	Low risk potential that must nevertheless be monitored as part of business processes

A traffic light system is used to differentiate between the perceived situations for each risk within the various risk levels. Risks assigned a red traffic light require immediate action. Targeted measures are implemented to address risks assigned amber traffic lights, while those judged to be green are constantly monitored as part of the routine operation of the risk management system for all risks in the risk catalog set up by SICK.

Each identified risk is documented in the risk catalog, monitored and hedged using appropriate measures that are stored in a central risk database. One means of hedging risks is the central insurance management. From an organizational perspective, the planning and risk management systems are managed in Corporate Controlling.

RISKS

The risks described below relate to SICK's business activities as a whole. These risks can have negative consequences for SICK's business, net assets, financial position and results of operations as well as its reputation. The areas of risk referred to below are by no means limited to substantial risks. Risks are divided into seven categories:

- Customer / market risks
- Force majeure
- Compliance risks
- Management risks
- Personnel risks
- Financial risks
- Process risks

CUSTOMER / MARKET RISKS

COMPETITIVENESS

Competition risks may stem from intensified competition, as a result of which SICK is unable to achieve its targets for market share, margins or growth.

SICK counters these risks by constantly analyzing the market, competition and statutory framework in the relevant lines of business and regions. The information obtained in this way allows SICK to develop and offer products and system solutions to meet demand, build on its competitive position, and raise its profile even more. In order to reinforce its competitive position, in 2018 SICK once again pursued its research and development activities in the field of conventional automation, while also developing new fields in connection with digitalization and Industry 4.0.

ECONOMIC RISKS

Weak economic growth and unexpected economic turbulence could have a negative impact on customer demand as a whole and therefore also on demand for SICK's products and system solutions. This could lead to declining unit sales, pressure on margins, and delayed or defaulted payments.

SICK regularly analyzes economic reports and forecasts in order to be able to respond promptly to changes. According to the IMF's current economic forecasts, the risks faced by the global economy have grown. In its new annual economic report, for example, the German Federal Ministry of Economics has reduced its forecast for

growth in Germany in 2019 to 1.0 percent. Increased interest rates in the US, a spiraling trade dispute between China and the US, the currently unclear arrangements for the UK's withdrawal from the EU and the continuation of high levels of government debt in Italy and Greece are all adding to the uncertainty surrounding economic developments in 2019.

SICK generally counters the risk of a weaker than anticipated economic performance in significant target industries and regions by diversifying its customer base. The company's offering is also diversified thanks to its good position in the three fields of factory, logistics, and process automation, which have very different market mechanisms.

FORCE MAJEURE

SICK mainly considers force majeure to be exogenous risks to its business in particular. This includes the political turbulence in relevant target markets as well as the risks associated with events such as natural disasters, fire, or flooding. This also covers disruptions to media such as the interruption of the supply of power or water to its various locations. In addition to production capacity, this also affects the security of the company's data and IT systems. In addition to comprehensive prevention measures, the main protective measure to preserve the company's value in this respect is sufficient insurance coverage for these loss events. It is, however, also important to ensure that the smooth operation of the company's processes is restored as quickly as possible in the case of a loss event.

COMPLIANCE RISKS

SICK records and manages risks relating to compliance breaches by means of a process that has been coordinated with the entire risk management function as part of its compliance management system. You can find out more about compliance management in the "Corporate governance and compliance management" section.

MANAGEMENT RISKS

Management risks are risks associated with management tasks within the company. These include topics such as strategy development and drawing up location concepts, but also risks associated with cultural transformation and the development of capabilities within the company. The Management Control Circle is used to integrate the decentralized areas of responsibility into institutionalized control and communication cycles with respect to decision-making processes within the company. This involves regularly reporting on and reaching decisions regarding opportunities and risks.

PERSONNEL RISKS

Personnel risks could arise as a result of a lack of qualified specialists, without whom an innovative technology company like SICK would be unable to succeed commercially. In response to the intensifying competition for qualified staff, which is compounded by demographic change, SICK must actively present itself as an attractive and secure employer on the global labor market in line with its mission statement, and offer good prospects to its employees. Please refer to the “Sustainability” section for more information on SICK’s HR policy and management.

FINANCIAL RISKS

LIQUIDITY RISKS

Ensuring that the company is solvent at all times is critical to its ability to continue as a going concern.

The SICK Group’s operational liquidity management comprises a cash concentration process whereby cash and cash equivalents are pooled on a daily basis. This allows liquidity surpluses and shortages to be controlled in line with the requirements of the Group as a whole as well as of individual group entities. The maturities of financial assets and financial liabilities as well as estimates of cash flows from operating activities are included in short- and medium-term liquidity management.

FINANCE AND INTEREST RATE RISKS

The debt finance of the SICK Group is primarily denominated in euro and takes the form of long-term loans and loans against a promissory note. The Group’s creditors are banks and insurance companies with which a long-term trusted business relationship exists. There are sufficient lines of credit in place to meet future investment requirements. The counterparty credit risk in financing is countered by limiting business relationships to dealings with banks with investment grade credit ratings.

The SICK Group responds to interest rate risks by entering into fixed-interest agreements over the term of its loans. When structuring loan maturities, SICK tries to ensure that these fall due for extension in different fiscal years.

CURRENCY RISKS

The global business activities of the SICK Group entail a large number of cash flows in different currencies. The company is particularly exposed to fluctuations in the exchange rate between the euro and other key currencies, as described in the management report and notes to the financial statements. Depending on the expected risk potential, exchange rates are hedged using traditional forward contracts or options over varying periods.

VALUATION ALLOWANCES

Default risks from receivables are minimized by ongoing monitoring of the creditworthiness of the counterparty and by limiting the aggregated risks from the individual counterparty. One major component here is a set of rules that contains guidelines for granting and monitoring credit limits. The application of these specifications keeps the default rate for receivables pertaining to sales consistently low. In the fiscal year 2018, it stood at approximately 0.03 percent.

PROCESS RISKS

INNOVATION PROCESSES

The risks associated with innovation processes may involve opportunities for future product developments being spotted too late, or development costs and times being estimated inaccurately or exceeded in connection with development processes.

SICK counters this risk by means of modern product portfolio management, which manages and controls the content and performance of products and tailors them to the needs of the market. In addition to constantly monitoring market developments, the SICK Group has a systematic product development process that takes account of all key market-related, technical, and economic aspects with the aim of achieving technological leadership. Areas in which a need for action is identified are transferred to projects that are managed using overarching and coordinated methods.

VALUE CREATION PROCESSES

SICK’s value creation processes comprise procurement as well as production.

SICK products feature leading technology and therefore also use state-of-the-art bought-in parts (semiconductor elements to process signals and generate light in particular). Bought-in parts that are developed and produced specifically for SICK create dependencies on suppliers and therefore risks in the event of any kind of disruption to their production or even stoppages. Risks on the procurement side also stem from price fluctuations as a result of increased costs for materials or bottlenecks in the delivery of certain groups of products.

That is why a special inventory management program and goods category-specific procurement strategies are used for bought-in parts. The inventory management program monitors operating, safety, and strategic stocks. In 2018 in particular, the risk management system prevented serious consequences for deliveries to customers. The funds spent on this pale in comparison to the consequences of customer complaints and the loss of customers. Safety and strategic stocks are maintained depending on the degree of risk. Please refer to the “Sustainability” section for more information on sustainable procurement and supplier selection as part of quality management.

In addition to procurement, SICK's own production makes a crucial contribution to added value. The main risks relate to interruptions to production, and can arise if production facilities or tools are damaged or stop entirely, or if capacity requirements are estimated inaccurately. Basic prevention in this regard involves regular maintenance, constant repair management, and adjusted restart plans in order to minimize the risk of production facility stoppages. Regular risk inspections and damage prevention measures also help mitigate the risk.

The existing global property and business interruption insurance also covers the financial risks arising for the SICK Group from damage to property and the resulting business interruption. All consolidated SICK entities are included in this cover. The insured amount is based on property, plant and equipment as well as the Group's sales.

DISTRIBUTION

Delays to distribution or violations of national and international export restrictions or air freight safety regulations can lead to trading restrictions, lost sales, or delayed deliveries, with higher costs. That is why SICK has introduced an export management system comprising an efficient export control organization and specific export control software.

PROCESS RISKS RELATING TO MANAGEMENT AND SUPPORTING PROCESSES

QUALITY

SICK offers its customers safety and process-related products, systems, and services. The high quality and reliability of the products is ensured by a quality and environmental and an integrated quality management system. Please refer to the "Sustainability" section for more information on quality management.

Errors on the customer side could still however lead to personal injury, financial loss, or harm to the environment that could form the basis for liability claims or impact the company's reputation.

The existing business and product liability insurance covers the financial risks from liability for damage to property and personal injury that could be caused by our products. The amount of coverage is based on past experience as well as the volume of sales. All consolidated SICK entities are integrated in this cover.

IT

IT risks have the potential to impact some of the most important strategic success factors for the SICK Group – the confidentiality, integrity, and availability of data. This is why we have established a comprehensive and modern IT infrastructure in the areas of administration, sales, and production. Continuous investment is made in modern IT systems, thus ensuring that competitive, futureproof, and fit-for-purpose IT solutions are used throughout the Group.

A longer-lasting outage of this complex IT infrastructure or the loss of data could result in considerable business disruption. As a result, the aim of our IT security policy is to identify and analyze IT risks at an early stage and to make them manageable by taking appropriate action. That is why, in 2018, SICK successfully completed the certification of its information security management system based on the internationally recognized standard ISO 27001. This includes a comprehensive security concept that reflects the high value attached to security and data protection at SICK and actively identifies potential risks. Irrespective of all measures to constantly improve IT security, it cannot be ruled out that the results of SICK's operations could be negatively impacted by the occurrence of one or more IT risks.

ENVIRONMENTAL RISKS

As a company that operates and manufactures on a global scale, SICK's business activities pose a risk to the environment. The main environmental aspects and their risk for the environment are determined annually pursuant to ISO 14001 and managed accordingly.

SICK's environmental management activities are aimed at adding value for the company by acting in a sustainable manner. Please refer to the "Sustainability" section for more information on environmental management.

Despite a long-term and environmentally-aware management approach, it cannot be ruled out that the SICK Group's results of operations could be significantly impacted by the occurrence of an environmental risk.

OPPORTUNITIES

SICK is a market leader in the growing sector of sensor technology for industrial applications. SICK's Executive Board and management look for opportunities to exploit potential for growth. Possibilities to achieve stronger growth than planned stem from a number of different strategic and operating opportunities. These are evaluated on a regular basis, and corresponding measures are implemented in order to take advantage of them.

As a global market leader and technological pioneer, the SICK Group is in a better position than most to benefit from the opportunities for growth presented by an innovative sector.

The company sees six different categories of significant opportunities:

- Opportunities of stronger global economic growth
- Opportunities of digitalization and Industry 4.0
- Opportunities of internationalization
- Opportunities of substantial investment in research and development
- Opportunities of very solid financial ratios and strong earnings power
- Opportunities as an attractive employer

OPPORTUNITIES OF STRONGER GLOBAL ECONOMIC GROWTH

Stronger global economic growth than anticipated and a stronger increase in industrial output than forecast offer additional growth opportunities for SICK. The IMF expects total global economic growth of 3.5 percent in 2019 (2018: 3.7 percent) and 3.6 percent in 2020, with a return to stronger growth in South America and the Middle East in particular. More restrictive emissions regulations in many countries present further prospects of growth in general for SICK.

OPPORTUNITIES OF DIGITALIZATION AND INDUSTRY 4.0

The progress of digitalization is making it possible to process bigger and bigger volumes of data and therefore information. Successfully providing and analyzing and effectively utilizing this information grants clear competitive advantages. As one of the world's leading manufacturers of sensors and sensor solutions for industrial applications, SICK lays the foundation for successful, data-based business models and is able to take advantage of the opportunities presented by digitalization in its own interest and the interest of its customers.

In the fiscal year 2018, SICK responded to the growing importance of digitalization for industrial processes by establishing a number of start-up initiatives.

These initiatives focus on three fields:

- Infrastructure: the secure use of digital sensor data
- Applications: the best possible inclusion and connection of sensors and software
- Customer services: the expansion of customer services based on digital data

They combine the existing wide range of know-how and the strengths of the existing SICK organization with the visionary mindset and actions of start-up culture. The success of the start-up initiatives will present further opportunities for SICK to grow.

In addition to the start-up initiatives for new topics, the existing SICK product portfolio provides a perfect foundation to address the topics of digitalization and Industry 4.0. This presents additional future opportunities for growth.

Industry 4.0 refers to the integration of modern information and communications technology for industrial production. This includes the bundling of various different technological developments that SICK has already been focusing on for many years. The requirements of Industry 4.0 pose particular challenges to the industrial users of SICK's sensors and sensor solutions with respect to the complexity of production. This is because the innovation steps for modern machines are also becoming increasingly rapid and simultaneous. At the same time, machinery and fixtures are steadily becoming more and more automated.

As one of the driving forces behind Industry 4.0 in Germany, SICK regularly evaluates the opportunities presented by Industry 4.0. Suitable measures are constantly being defined and implemented in order to gain an advantage. SICK's product portfolio is very well placed to benefit from this growth market. The company is also constantly analyzing what other product developments could be of relevance.

In its business activities, SICK demonstrates the current opportunities of Industry 4.0 in a very practical way at its new production facility in Freiburg. A highly flexible and adaptable form of production has been established there. Innovative future sensor solutions are already used there and presented to customers as part of an assembly system that is used to make SICK's own sensors.

OPPORTUNITIES OF INTERNATIONALIZATION

SICK is constantly expanding its customer, product, and system base as part of the ongoing internationalization of value added and internal value added in its sales and procurement regions. This global strategic direction presents SICK with numerous opportunities, both in the labor market and through greater proximity to its customers. SICK is for example constantly working to introduce new facilities or branch offices and standardized business processes in new international markets.

OPPORTUNITIES OF SUBSTANTIAL INVESTMENT IN RESEARCH AND DEVELOPMENT

SICK is a highly innovative company. It had 1,239 employees working in research and development at the end of 2018. Investment in research and development amounted to EUR 185.5 million in 2018. This represents 11.3 percent of the Group's sales. Future opportunities stem from new, successful products and system solutions with the potential to accelerate the company's growth more than average if they are accepted by customers.

OPPORTUNITIES OF SOLID FINANCIAL RATIOS AND STRONG EARNINGS POWER

The SICK Group has solid financial ratios, with an equity ratio of 50.2 percent and cash and cash equivalents of EUR 21.2 million. EBIT of EUR 117.5 million and operating cash flow of EUR 20.2 million bear witness to the company's earnings power. SICK's solid financial ratios and strong earnings power allow it to exploit additional opportunities for growth using its own financial muscle.

OPPORTUNITIES AS AN ATTRACTIVE EMPLOYER

SICK has been named several times as one of Germany's best employers. An attractive system of compensation and exemplary social benefits as well as comprehensive further training opportunities ensure that employees remain loyal to the company for a long time. As a highly innovative company, motivated employees represent a long-term growth opportunity for SICK. Please refer to the "Sustainability" section for more information on HR policy.

General statement concerning risks and opportunities

Although the assessments of some risks changed over the course of the fiscal year due to external developments, economic uncertainty and measures implemented by the company or changes to planning, the overall situation with respect to risks and opportunities is largely in line with the prior year's estimates. The overall level of risk faced by SICK remains within a range that is typical for the business.

The growing importance of Industry 4.0 and the fact that intelligent sensors are essential as a data basis for smart factories open up major opportunities for technological and economic growth for SICK. The topics of connecting sensor systems to upstream cloud solutions, applications in the data landscape, and data sovereignty are particularly relevant. However, the approaching technological changes also entail a great deal of investment and corresponding expenses as well as risks.

The Executive Board firmly believe that the risks and opportunities described for the SICK Group are manageable and do not jeopardize the company's ability to continue as a going concern, either individually or in their totality.

REPORT ON EXPECTED DEVELOPMENTS

The comments regarding the company's anticipated performance in 2019 are based on the information, expectations, and assumptions that were known and available at the time the forecast was issued. As statements concerning the future, these are subject to a high degree of uncertainty.

Economic prospects for 2019

In its current economic forecast (World Economic Outlook, January 2019), the International Monetary Fund (IMF) expects global GDP to grow by 3.5 percent in 2019 (2018: 3.7 percent). Although the growth trend that has persisted since the second half of 2016

slowed in the second half of 2018, global economic growth remains robust. Global economic growth has become more firmly established on the whole. As a sector with a strong focus on exports, this offers the German manufacturing industry further opportunities for growth in 2019.

The relatively robust global economy and ongoing digitalization and connectivity of industrial manufacturing processes will continue to offer good prospects for growth for highly innovative and international companies in the sensor technology sector in 2019. The factors fueling the growth of the sensor technology industry are the increasing use of sensor technology and corresponding system solutions in the production, storage, and distribution of goods, the

rise of automation, increasing requirements for the management of industrial processes and the distribution of products in the manufacturing industry, increasing quality and documentation requirements, and stricter environmental regulations.

Based on the continued positive trend for general economic and sector-specific conditions as described in detail in the report on the economic position in the management report, the Executive Board of the SICK Group expects its important financial and non-financial indicators to change as follows.

Sensor intelligence – a prerequisite for Industry 4.0

Global demand for systems and system solutions for intelligently rationalizing and improving the efficiency of production, logistics, and other processes remains high. The “Smart Factory” that is the aim in connection with Industry 4.0 offers particular development opportunities for SICK. Intelligent connectivity in production, logistics, and administrative processes can only be implemented if robust and intelligent sensors capture reality in the form of data and provide these data in the volumes required for Industry 4.0. Industry experts expect the average growth rates of the global sensor technology industry to remain high, with global sales in the sector of USD 241 billion in 2022 (source: Allied Market Research: Global Sensor Market 2022). SICK will continue to gear its product portfolio and its research and development activities to recognizing interrelationships at the customer and thus increasing the transparency in the customer's application so that the customer can make better decisions. SICK sensors have to solve the customer's problems in a simple manner that contributes to improving performance or conserving resources. This applies to all target industries. Comprehensive application knowledge about the respective application is necessary for this. Another pivotal area involves connectivity, in order to guarantee seamless communication from the sensor level via the control level through to the overarching data level (e.g., in the form of a cloud). In turn, an essential prerequisite for this is data sovereignty, to which SICK as a founding member of Industrial Data Space e.V. has made a very firm commitment. Thanks to its broad product and service portfolio, its system and solution competence, its extensive industry expertise and global presence, the SICK Group is in an excellent position to respond to customer demands for intelligent automation solutions that provide this added value, particularly in the context of Industry 4.0.

Sales forecasts for the sales regions

Based on our current knowledge and the general economic and sector-specific conditions outlined, SICK's Executive Board expect the SICK Group to continue to achieve dynamic and positive growth. We expect sales to grow by a high single-digit percentage in the fiscal year 2019.

GERMANY

SICK still enjoys a strong market position in the sales region of Germany. That makes high rates of growth harder to achieve, particularly against the backdrop of an economic downturn. We nevertheless expect percentage growth to be in the high single digits. Particular stimulus should come from the factory and logistics automation businesses.

EUROPE, MIDDLE EAST, AND AFRICA (EMEA)

We expect high single-digit to low double-digit percentage growth for the Europe, Middle East, and Africa (EMEA) sales region. We expect dynamic growth to continue in the field of process automation in particular. The uncertain consequences of the UK's impending withdrawal from the EU and the poor economic performance of certain countries in southern Europe could impact the anticipated dynamic growth.

NORTH, CENTRAL, AND SOUTH AMERICA (AMERICAS)

We expect clearly positive growth again in the North, Central, and South America (Americas) sales region, with percentage growth rates in the low double digits. Significant growth is above all planned in the US, Canada and Mexico. In Central and South America, ongoing currency fluctuations and political uncertainty are preventing stronger growth from being achieved in euros.

ASIA-PACIFIC

In the fiscal year 2019, we once again expect strong percentage growth in the low double digits in the Asia-Pacific sales region. An anticipated slowdown in growth in China should be offset by the success of our business in all of the other countries in the region.

EBIT forecast

The implementation of the SICK Group's strategy of growth requires more significant expenditure and investment. In the fiscal year 2019, the company is planning to once again spend a low double-digit percentage of its sales on R&D. On the whole, we expect the increase in expenses to fall slightly short of the growth of sales in 2019. This should bring about a slight improvement in operating profitability. The company is aiming to achieve a high single-digit percentage EBIT margin in the fiscal year 2019. The target for the EBIT margin ensures SICK's traditional aim of striking a balance between securing income in the short term and technology in the long term. We therefore expect SICK to operate and remain profitable for the long term.

Development of other financial performance indicators

Capital management will continue to be pursued in the fiscal year 2019 based on the assumption that liquidity and the equity ratio remain at a high level. At the same time, we are focusing on achieving a low-risk financing structure. Dividend payments will continue to be made in a way that takes into account the need for investment and the target range for the planned capital structure. The Group's further growth will also be safeguarded by maintaining sufficient liquidity as well as short-term and long-term credit lines that offer flexibility in covering refinancing needs.

Development of non-financial performance indicators

The positive development of the most important non-financial performance indicators in the fiscal year 2019 ensures the sustainable and profitable growth that SICK is aiming to achieve. The key

indicators are the persistently strong R&D activities, attracting and retaining qualified employees, and meeting high standards of quality and sustainability targets.

General summary of projected development

Group sales reached a new record level in the fiscal year 2018. Operating profitability was impacted in 2018 by the expected increase in expenses combined with additional expenses to safeguard the Group's ability to make deliveries. The operating return was 7.2 percent, and thus in line with expectations. The SICK Group fulfilled the forecast for 2018 on the whole.

The overall outlook for the fiscal year 2019 is also still positive. Global economic growth is expected to be stable. The risks faced by the global economy have grown considerably, however, and make forecasting less certain. But with our innovative portfolio of products and services, the SICK Group stands a good chance of continuing to benefit from increasing demands, particularly in the context of digitalization and Industry 4.0.

KEY FIGURES OF THE FORECAST FOR THE FISCAL YEAR 2019

Global economic growth	+3.5%
Group sales	High single-digit percentage growth
EBIT margin	In the high single-digit percentage range
Employees	Mid-range single-digit percentage growth
R&D investment and spending	Slightly disproportionate increase

Our global presence, our balanced portfolio and the fact that SICK is flexible enough to be able to react rapidly to changes remain an excellent basis from which to continue to grow and secure the SICK Group's high level of profitability in 2019.

DEPENDENT COMPANY REPORT

More than 50 percent of the shares in SICK AG are held by Sick Holding GmbH, which in turn belongs to the Sick family that founded the company. As a result, the Executive Board prepared a dependent company report in accordance with Sec. 312 AktG ("Aktiengesetz": German Stock Corporations Act), which was audited and on which an auditor's report was issued as part of the audit of the financial statements. The Executive Board declares the following in accordance with Sec. 312 (3) AktG: "In the legal transactions listed in the dependent company report, and according to the

circumstances that were known to us when those legal transactions were performed, our company received an appropriate consideration in each legal transaction. We did not undertake, or refrain from taking, any actions motivated by or in the interest of the controlling company or its affiliates."

The following management report explains the development of SICK AG in the fiscal year 2018:

MANAGEMENT REPORT OF SICK AG

SICK AG has its headquarters in Waldkirch near Freiburg in the State of Baden-Württemberg in Germany. This is the head office of the SICK Group and is also its largest development and production location. The development of the Group's international sales and service companies is closely coordinated with the Waldkirch location in order to mitigate risks. However, to a large extent the companies have their own responsibilities in terms of day-to-day operations.

The financial statements of SICK AG are prepared in accordance with the requirements of the HGB, while the consolidated financial statements are prepared in accordance with International Financial Reporting Standards (IFRS).

The basic statements in the combined management report, in particular in relation to the market and strategy as well as the opportunities and risks relating to business activities, also apply with respect to SICK AG.

The reporting year was again encouraging for SICK AG. Sales amounted to EUR 1,129.7 million at the end of the reporting period, representing a year-on-year increase of 6.8 percent (2017: EUR 1,057.7 million).

SICK AG does not issue its own separate forecast. The forecast issued by the SICK Group therefore also applies to SICK AG.

The cost of materials rose from EUR 554.1 million to EUR 599.6 million (up 8.2 percent).

SICK AG had an average headcount of 3,984 employees in the fiscal year 2018, an increase of 10.1 percent compared with the prior year (2017: 3,617 employees). In addition to this, 227 trainees were employed at the company (2017: 207). Due to this increased headcount and as a result of the collective wage increase in Germany, personnel expenses rose by 11.4 percent from EUR 307.5 million to EUR 342.5 million.

Depreciation and amortization rose 14.7 percent from EUR 31.3 million to EUR 35.9 million.

Other operating expenses increased by 10.2 percent from EUR 213.5 million to EUR 235.3 million.

The financial result improved from EUR 62.5 million to EUR 71.9 million (up 15.0 percent).

On the whole, the items described yielded a decrease in earnings before taxes, which fell from EUR 80.3 million to EUR 49.5 million. This is a decrease of 38.4 percent.

Tax expenses fell from EUR 15.2 million to EUR 10.4 million. SICK AG's net income for the year fell to EUR 38.4 million in total (2017: EUR 64.6 million).

The total volume of SICK AG's assets rose by EUR 140.3 million in the fiscal year 2018, to EUR 941.9 million (prior year: EUR 801.6 million).

The following changes occurred on the assets side of the statement of financial position. The financial assets of SICK AG increased by 5.5 percent in the fiscal year 2018 from EUR 92.3 million to EUR 97.4 million. Property, plant and equipment increased by 14.6 percent, from EUR 212.0 million to EUR 243.0 million, due to the continuation of substantial investment.

Net working capital increased from EUR 480.2 million to EUR 585.5 million (up 21.9 percent). This can mainly be attributed to the increase in inventories, receivables, and other assets.

On the equity and liabilities side of the statement of financial position, this is reflected in a year-on-year rise in liabilities of 39.3 percent to EUR 425.4 million. Provisions rose by 7.2 percent to EUR 114.8 million.

SICK AG's equity rose slightly (3.2 percent) in the reporting year, to EUR 401.7 million (2017: EUR 389.2 million). Debt capital increased by 31.0 percent, which is above average. The equity ratio decreased from 48.5 percent to 42.6 percent.

In terms of business development, the statements made in the group management report also apply to a large extent to SICK AG.

Waldkirch, March 19, 2019

The Executive Board



Dr. Robert Bauer
(Chairman)



Reinhard Bösl



Dr. Mats Gökstorp



Dr. Martin Krämer



Markus Vatter

GROUP FINANCIAL STATEMENTS

of SICK AG

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GROUP FINANCIAL STATEMENTS

for SICK AG for the fiscal year 2018

CONSOLIDATED INCOME STATEMENT

of SICK AG for the period from January 1 to December 31, 2018

in EUR k	Notes	2018	2017
Sales	(1)	1,636,788	1,511,553
Changes in inventory		19,409	15,102
Own work capitalized	(2)	24,515	23,803
Cost of materials	(3)	517,754	450,695
Gross profit		1,162,958	1,099,763
Personnel expenses	(4)	699,349	639,837
Depreciation and amortization	(5)	62,578	55,671
Other operating expenses	(6)	288,985	259,403
Other operating income	(7)	13,170	9,365
Currency results	(8)	-7,790	-5,709
Operating results		117,426	148,508
Net investment income/expense	(9)	98	327
Earnings before interest and tax (EBIT)		117,524	148,835
Interest expense	(10)	4,956	3,292
Interest income	(11)	267	233
Earnings before tax		112,835	145,776
Income tax	(12)	30,462	40,691
Consolidated net income		82,373	105,085
of which attributable to shareholders of SICK AG		81,736	104,324
of which attributable to non-controlling interests		637	761
EARNINGS PER SHARE (BASIC AND DILUTED)	(13)	3.12 EUR	3.98 EUR

CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

of SICK AG for the period from January 1 to December 31, 2018

in EUR k	2018	2017
Consolidated net income	82,373	105,085
Other comprehensive income		
Items that will never be reclassified to profit or loss		
Remeasurement of pension obligations	-214	-550
Tax effect		
Remeasurement of pension obligations	-65	-239
Items that were or that can be reclassified to profit or loss		
Currency translation differences	-788	-16,249
Tax effect		
Currency translation differences	-788	-16,249
Other comprehensive income	-853	-16,488
COMPREHENSIVE INCOME	81,520	88,597
of which attributable to shareholders of SICK AG	80,936	88,042
of which attributable to non-controlling interests	584	555

CONSOLIDATED STATEMENT OF CASH FLOWS

of SICK AG for the period from January 1 to December 31, 2018

in EUR k	2018	2017
Consolidated net income	82,373	105,085
Adjustments for:		
Income tax	30,462	40,691
Net interest income	4,689	3,059
Depreciation and amortization	62,578	55,671
Losses from the disposal of non-current assets	5	97
Income from financial investments	-98	-327
Other non-cash transactions	-4,755	-2,422
Change in inventory	-84,629	-61,725
Change in trade receivables and other assets	-51,850	-49,171
Change in non-current provisions	2,915	2,939
Change in trade payables and other liabilities	19,172	48,008
Cash flow from operating activities	60,862	141,905
Interest paid	-3,879	-2,221
Interest received	267	233
Income tax paid	-37,055	-38,104
Cash flow from operating activities	20,195	101,813
Cash received from disposals of non-current assets	154	406
Cash paid for investments in property, plant and equipment	-89,370	-78,459
Cash paid for investments in intangible assets	-17,794	-15,858
Cash received from disposals (cash paid for investments) of financial assets	229	67
Cash paid for the acquisition of a business unit	-1,224	-1,529
Cash flow from investing activities	-108,005	-95,373
Acquisition of treasury shares	56	10
Cash paid to owners	-26,208	-26,205
Cash paid for the acquisition of non-controlling interests	-4,336	0
Repayment of finance lease liabilities	-1,614	-2,062
Cash received from loans	131,933	18,447
Cash repayments of loans	-11,100	-6,169
Cash flow from financing activities	88,731	-15,979
Effect of changes in foreign exchange rates and changes in consolidated entities on cash and cash equivalents	-228	-1,102
Net change in cash and cash equivalents	693	-10,641
Cash and cash equivalents at the beginning of the period	20,459	31,100
CASH AND CASH EQUIVALENTS AT THE END OF THE PERIOD	21,152	20,459

For additional explanations, reference is made to the disclosures in the notes to the consolidated financial statements in D. "Consolidated statement of cash flows."

CONSOLIDATED STATEMENT OF FINANCIAL POSITION
of SICK AG as of December 31, 2018

ASSETS

in EUR k

	Notes	2018	2017
A. Non-current assets			
I. Intangible assets	(14)	67,943	67,871
II. Property, plant and equipment		353,082	309,373
III. Investments accounted for using the equity method	(15)	4,164	4,023
IV. Other financial assets	(16)	1,645	535
V. Deferred taxes	(12)	31,778	26,955
		458,612	408,757
B. Current assets			
I. Inventories	(17)	380,420	292,373
II. Trade receivables	(18)	334,354	288,299
III. Tax receivables	(19)	13,068	4,696
IV. Other assets	(20)	58,119	51,617
V. Cash and cash equivalents	(21)	21,152	20,459
		807,113	657,444
		1,265,725	1,066,201

EQUITY AND LIABILITIES

in EUR k

	Notes	2018	2017
A. Equity			
I. Issued capital	(22)	26,405	26,405
II. Capital reserves	(23)	22,642	22,437
III. Treasury shares	(24)	-3,391	-3,447
IV. Revenue reserves	(25)	589,031	535,320
Equity attributable to the shareholders		634,687	580,715
V. Non-controlling interests		939	3,733
		635,626	584,448
B. Non-current liabilities			
I. Financial liabilities	(27)	76,334	84,973
II. Provisions and other liabilities	(28)	90,129	86,598
III. Deferred taxes	(12)	1,840	2,236
		168,303	173,807
C. Current liabilities			
I. Financial liabilities	(27)	154,846	26,842
II. Other provisions	(28)	21,631	20,813
III. Tax liabilities	(29)	18,866	11,961
IV. Trade payables	(30)	93,340	127,132
V. Contract liabilities	(31)	48,981	-
VI. Other liabilities	(32)	124,132	121,198
		461,796	307,946
		1,265,725	1,066,201

CONSOLIDATED STATEMENT OF CHANGES IN EQUITY

of SICK AG as of December 31, 2018

in EUR k

	Issued capital	Capital reserves	Treasury shares
Balance as of Jan. 1, 2017	26,405	22,285	-3,457
Consolidated net income			
Other comprehensive income			
Comprehensive income			
Change in treasury shares		152	10
Dividend payment			
Other changes			
Balance as of Dec. 31, 2017	26,405	22,437	-3,447
Balance as of Jan. 1, 2018	26,405	22,437	-3,447
Consolidated net income			
Other comprehensive income			
Comprehensive income			
Change in treasury shares		205	56
Dividend payment			
Other changes			
BALANCE AS OF DEC. 31, 2018	26,405	22,642	-3,391

Other comprehensive income includes effects from the remeasurement of pension obligations and from currency translation.

	Revenue reserves	Equity attributable to the shareholders	Non-controlling interests	Equity
	473,408	518,641	3,357	521,998
	104,324	104,324	761	105,085
	-16,282	-16,282	-206	-16,488
	88,042	88,042	555	88,597
		162		162
	-26,205	-26,205		-26,205
	75	75	-179	-104
	535,320	580,715	3,733	584,448
	535,320	580,715	3,733	584,448
	81,736	81,736	637	82,373
	-800	-800	-53	-853
	80,936	80,936	584	81,520
		261		261
	-26,208	-26,208		-26,208
	-1,017	-1,017	-3,378	-4,395
	589,031	634,687	939	635,626

IFRS NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

of SICK AG as of December 31, 2018



A. GENERAL DISCLOSURES

General

The consolidated financial statements of SICK AG, Waldkirch, Germany, for the year 2018 were prepared according to the International Financial Reporting Standards (IFRS) issued by the International Accounting Standards Board (IASB), London, United Kingdom, as adopted by the EU, and according to the additional requirements of German commercial law pursuant to Sec. 315e (1) HGB (“Handelsgesetzbuch”: German Commercial Code). The consolidated financial statements consist of the consolidated income statement, consolidated statement of comprehensive income, consolidated statement of financial position, consolidated statement of cash flows, consolidated statement of changes in equity and the notes to the consolidated financial statements. SICK AG also prepared a group management report.

SICK AG, with registered offices in Waldkirch, Erwin-Sick-Str. 1, Germany, and filed with the commercial register of Freiburg local court under HRB 280355, is the parent company of the SICK Group.

SICK AG is a subsidiary of Sick Holding GmbH, Freiburg, Germany. The consolidated financial statements are available at the registered offices of the company.

Economic background

SICK is one of the leading global manufacturers of intelligent sensors and sensor solutions for industrial applications. The Group has been in the sensor technology business for more than 70 years, has over 9,000 employees worldwide today, and comprises 47 consolidated subsidiaries in over 30 countries as well as numerous equity investments and agencies.

The company has its main production sites in Germany, China, Malaysia, Hungary, and the United States. SICK is well positioned internationally and has a worldwide distribution network with its own subsidiaries, equity investments, and agencies in all major industrial countries.

Summary of significant accounting policies

All IFRSs subject to mandatory adoption as of December 31, 2018 have been applied. These include the International Accounting Standards (IAS) as well as the interpretations of the International Financial Reporting Interpretations Committee (IFRIC) and the Standing Interpretations Committee (SIC). The Group has decided not to early adopt standards or interpretations that are not yet effective. These standards and interpretations are listed in G. (42) "Financial reporting standards not early adopted."

The fiscal year of the SICK Group and all the entities included in consolidation is the calendar year.

The group currency is the euro. As a rule, all amounts are stated in thousands of euro (EUR k). Deviations from this rule are indicated accordingly. Due to rounding, it is possible that some figures do not add up precisely to the sums stated.

The consolidated financial statements have been prepared on the basis of the historical cost convention, apart from derivatives, equity-settled share-based payment transactions, financial instruments classified as available for sale and current receivables and liabilities in foreign currency. These are reported at fair value.

The income statement has been prepared using the nature of expense method.

Effects of new financial reporting standards

The financial reporting principles applied were virtually unchanged on the prior year, except for the following standards:

Standards/interpretations	Title	Applicable from	Impact on SICK
IFRS 9	Financial Instruments	January 1, 2018	Explanations after this table
IFRS 15	Revenue from Contracts with Customers	January 1, 2018	Explanations after this table
Amendments to IFRS 15	Clarifications to IFRS 15	January 1, 2018	Explanations after this table

IFRS 9 introduces a uniform approach for classifying and measuring financial assets. The standard is based on the characteristics of the cash flows and the business model used to manage these cash flows. It also provides a new impairment model that is based on the expected credit loss. IFRS 9 also contains new rules on the application of hedge accounting, which are not applied by the Group in 2018 because it has no derivative financial instruments that meet the recognition criteria.

IFRS 9 is applied for the first time using the modified retrospective method without adjusting the prior-year figures. As of first-time application on January 1, 2018, the amendments have no significant impact on the Group's financial position and performance.

IFRS 15 sets an extensive framework for determining whether, for what amount, and at when revenue is recognized. It replaces existing guidelines on recognizing revenue, including IAS 18 "Revenue," IAS 11 "Construction Contracts," and IFRIC 13 "Customer Loyalty Programmes."

The new standard sets out a five-step model for revenue recognition, under which the entity first has to identify if a contract with a customer falls under the standard's definition. The entity's performance obligations defined explicitly or implicitly in the contract must be identified separately, and the transaction price to be received by the customer must be allocated to these performance obligations. Revenue is recognized either at a point in time or over time upon transfer of control.

In April 2016, the IASB published clarifications to IFRS 15 that are also effective for fiscal years beginning on or after January 1, 2018.

The rules in IFRS 15 are applied using the modified retrospective approach as of January 1, 2018. This did not result in any material change to the opening statement of financial position as of January 1, 2018. The prior-year comparative figures are not adjusted, in accordance with the transitional provisions of the standard. In addition, the Group exercises the practical expedient provided by IFRS 15.C7 and has not reassessed contracts that were fulfilled before the date of first-time application, January 1, 2018.

The amendments to IFRS 15 result in new quantitative and qualitative disclosures in the notes. Application of IFRS 15 did not cause any material changes to the timing or amount of revenue recognized, meaning that there were no major changes to the income statement. IFRS 15 requires separate disclosure of contract assets and contract liabilities in the statement of financial position. This meant that unrealized revenue from service contracts that had been posted as deferred income pursuant to IAS 18 was reclassified to other liabilities, and payments on account received were reclassified from trade payables. There were no contract assets for performance obligations rendered for which there is no unconditional right to payment, costs to obtain contracts with customers nor costs to fulfill a contract to recognize as of January 1, 2018.

As of first-time application on January 1, 2018, there was no other significant impact on the Group's financial position and performance.

Other amendments relate to the following new and amended standards and interpretations effective as of 2018.

Standards/interpretations	Title	Applicable from	Impact on SICK
Amendments to IAS 40	Amendment to Transfers of Investment Property	January 1, 2018	Not applicable
Amendments to IFRS 2	Clarification of classification and measurement of share-based payment transactions	January 1, 2018	Immaterial
Amendments to IFRS 4	Application of IFRS 9 "Financial Instruments" together with IFRS 4 "Insurance Contracts"	January 1, 2018	Not applicable
IFRIC 22	Foreign Currency Transactions and Advance Consideration	January 1, 2018	Immaterial
Annual Improvements to IFRSs (2014 – 2016 Cycle)	Amendments to various standards (IFRS 1, IFRS 12, and IAS 28)	January 1, 2018	Immaterial

B. CONSOLIDATION PRINCIPLES

Consolidation methods

The consolidated financial statements include the financial statements of SICK AG and its subsidiaries as of December 31, 2018. Subsidiaries are fully consolidated from the date of acquisition, being the date on which the Group obtains control, and continue to be consolidated until the date that such control by the parent ceases.

For a list of group entities, reference is made to attachment A6 of these notes to the consolidated financial statements.

The financial statements of the subsidiaries are prepared for the same reporting period as the parent company, using consistent accounting policies.

All intra-group balances, transactions, unrealized gains and losses resulting from intra-group transactions and dividends are eliminated in full.

Comprehensive income within a subsidiary is attributed to the non-controlling interests even if it results in a negative balance. A change in the ownership interest of a subsidiary which does not involve a loss of control is accounted for as an equity transaction.

Business combinations are accounted for using the purchase method. The cost of an acquisition is the aggregate of the consideration transferred, measured at acquisition date fair value, and the amount of any non-controlling interest in the acquiree. For each business combination, the Group elects whether it measures the non-controlling interest in the acquiree either at fair value or at the proportionate share of the acquiree's identifiable net assets. Costs incurred in the course of the acquisition are expensed.

If the business combination is achieved in stages, the acquisition date fair value of the acquirer's previously held equity interest in the acquiree is remeasured to fair value at the acquisition date through profit or loss.

Goodwill is initially measured at cost, being the excess of the aggregate of the consideration transferred and the amount recognized for the non-controlling interest over the net identifiable assets acquired and liabilities of the Group assumed. If this consideration is lower than the fair value of the net assets of the subsidiary acquired, the difference is recognized in profit or loss after reexamination.

Associates and joint ventures are consolidated using the equity method.

Basis of consolidation

As in the prior year, besides SICK AG, the consolidated financial statements include six German and 41 foreign fully consolidated subsidiaries (purchase method) in which SICK AG has the direct or indirect majority of voting rights as of the end of the reporting period December 31, 2018.

CHANGES IN THE BASIS OF CONSOLIDATION

In July 2018, the remaining 15 percent of the shares in SICK MAIHAK (Beijing) Co., Ltd., Beijing, China, were transferred to SICK, meaning that SICK MAIHAK (Beijing) Co., Ltd. is now a wholly owned subsidiary. SICK also acquired a further 18 percent of SICK Metering Systems N.V., Stabroek, Belgium, in December 2018, thus raising its shareholding to 100 percent.

The difference between the cost and the carrying amount of the interest acquired has been recognized in revenue reserves within equity.

SICK sold the 50 percent of the shares it held in SICK kluge GmbH, Königswartha, Germany, in December 2018.

Currency translation

The functional currency is the euro. Foreign currency business transactions are translated at the exchange rate prevailing on the date of the transaction. Gains and losses from the settlement of such business transactions as well as from the translation of monetary assets and liabilities are reported in the income statement.

The separate financial statements of foreign subsidiaries are translated using the functional currency method in accordance with IAS 21 "The Effects of Changes in Foreign Exchange Rates." Generally speaking, the entities work independently of one another for financial and economic purposes. The functional currency is the local currency of these entities.

Assets and liabilities, contingent liabilities, and other financial obligations are translated at the closing rate. The income and expenses in the income statement and thus the net profit or loss for the year reported in the income statement are translated at the annual average rate.

The currency difference arising from translation is offset against the revenue reserves in the item currency translation differences.

Goodwill and adjustments of assets and liabilities resulting from the purchase of a foreign entity are translated at the closing rate.

When translating the financial statements of foreign entities accounted for using the equity method, the equity is measured in accordance with the same principles used for consolidated subsidiaries.

Currency translation is based on the following key exchange rates:

Exchange rate 1 EUR =	ISO code	Closing rate Dec. 31, 2018	Annual average rate 2018	Closing rate Dec. 31, 2017	Annual average rate 2017
Australia	AUD	1.6191	1.5801	1.5333	1.4728
China	CNY	7.8279	7.8073	7.8073	7.6260
United Kingdom	GBP	0.9021	0.8848	0.8890	0.8763
Poland	PLN	4.2944	4.2599	4.1826	4.2566
South Korea	KRW	1,278.5700	1,299.1506	1,278.3700	1,275.6177
USA	USD	1.1397	1.1816	1.1947	1.1291

C. ACCOUNTING POLICIES

Significant accounting judgments, estimates, and assumptions

The preparation of the Group's consolidated financial statements requires management to make judgments, estimates, and assumptions that affect the reported amounts of income, expenses, assets and liabilities as well as the disclosure of contingent liabilities at the end of the reporting period. However, uncertainty about these assumptions and estimates could result in outcomes that require a material adjustment to the carrying amount of the asset or liability affected in future periods.

The main judgments, estimates, and assumptions are explained in detail below:

In order to recognize revenue, management generally makes estimates that relate to identifying and defining performance obligations as well as allocating the transaction price to the individual performance obligations.

Revenue from systems tends to entail a significant integration service by SICK, as a result of which there are no distinct performance obligations. As a rule, control is transferred upon acceptance by the customer because the conditions for recognizing revenue over time are not met.

When serial products or systems are bundled with service contracts, the respective performance obligations are generally separated if these represent distinct services.

Impairment tests for goodwill are carried out at least once a year at the level of the cash-generating unit. The recoverable amount of the cash-generating units is determined based on a value in use calculation. To calculate this, cash flow projections are based on medium-term planning approved by the management. The basic assumptions and carrying amounts are explained in more detail in section F. (14) "Intangible assets."

Development costs are capitalized in accordance with the accounting policy presented. Initial recognition of development costs is based on an assessment by management that the development is both technically and economically feasible. In determining the amounts to be capitalized, management makes assumptions regarding the expected future cash flows from the project, discount rates to be applied, and the expected period of benefits. For a presentation of the carrying amounts of the capitalized development costs, reference is made to attachment A1 of these notes to the consolidated financial statements.

SICK uses provision matrices to calculate the expected credit losses on financial assets. The provision matrices take the Group's historical default rates as a starting point. The Group then calibrates the matrices to adjust its historical default rates to prospective information. For instance, if the assumption is that the forecasted economic conditions (such as gross domestic product) will worsen over the course of the coming year, which may lead to a higher level of default rates in the manufacturing industry, then the historical default rates are adjusted. The historical default rates are updated and amendments to the forward-looking estimates are analyzed as of each reporting date.

Assessing the link between the historical default rates, forecasted economic conditions and expected credit losses constitutes a significant estimate. The amount of the expected credit losses depends on changes to circumstances and the forecasted economic conditions. The Group's historical credit losses and the forecast of the economic conditions are potentially not representative of customers' actual defaults in the future. Information about the expected credit losses on trade receivables can be found in section G. (36 d) "Credit risks."

Uncertainties exist with respect to the interpretation of complex tax law regulations and the amount and timing of future taxable income. Given the wide range of international business relationships and the long-term nature and complexity of existing contractual agreements, differences arising between the actual results and the assumptions made, or changes to such assumptions, could necessitate future adjustments to tax income and expense already recorded.

Deferred tax assets are recognized for all unused tax losses to the extent that it is probable that taxable profit will be available against which the losses can be utilized. Significant management judgment is required to determine the amount of deferred tax assets that can be recognized, based upon the likely timing and the level of future taxable profits together with future tax planning strategies. Further details on taxes are presented in section E. (12) "Income tax."

The cost of defined benefit plans and the present value of the pension obligation are determined using actuarial valuations. An actuarial valuation involves making various assumptions that can differ from actual developments in the future. These include future anticipated increases in salaries and pensions, the determination of discount rates as well as of biometric data. Due to the complexity of the valuation, the underlying assumptions, and its long-term nature, a defined benefit obligation is highly sensitive to changes in these assumptions. All assumptions are reviewed at each reporting date. Further information about the assumptions used is given in section F. (28) "Provisions and other liabilities."

Revenue recognition

SICK sells sensor solutions in the form of serial products, systems, and individual services.

Revenue from contracts with customers is generally recognized when control over the distinct goods and services is transferred to the customer.

In general, revenue from serial products and systems is realized at a point in time when the customer obtains control. This is the case upon delivery to the customer or following acceptance by the customer. Serial products are invoiced on delivery; the payment terms usually stipulate payment within 30 to 90 days following billing. Invoices for systems are issued pursuant to the contractual conditions; the payment terms may stipulate short-term payments on account as well as a final payment within 30 to 90 days following billing.

Revenue from services tends to be realized over time on a straight-line basis when control is transferred to the customer over a period of time. Invoices are issued pursuant to the contractual conditions; the payment terms usually stipulate payment within 30 days following billing.

The revenue to be recorded is measured based on the transaction price. This corresponds to the amount of consideration to which the entity expects to be entitled once the performance obligations have been fulfilled as defined in the contract.

Calculation of the transaction price takes other factors such as variable consideration and financing components into account. Variable consideration such as price and volume discounts are included when it is highly probable that there will be no significant withdrawal of revenue. The amount of variable consideration is determined either using the expected value or the most likely amount method, depending on which of these is the more accurate prediction of the variable consideration. If the period between the transfer of goods or services and the contractually agreed time of payment is greater than twelve months and the customer or SICK has a substantial benefit from the financing, the consideration is adjusted by the time value of money.

SICK also determines whether the contracts contain additional performance obligations to which a portion of the transaction price is assigned. If a contract comprises several distinct goods or services, the transaction price is allocated to the performance obligations based on the relative stand-alone selling prices. If the stand-alone selling prices are not directly observable, SICK estimates these appropriately. In the Group, this primarily relates to service contracts. Please refer to section F. (31) "Contract liabilities."

SICK makes use of the practical expedient offered by IFRS 15.121 and does not disclose the transaction price allocated to the remaining performance obligations (for which no revenue has yet been recognized), as the performance obligations are part of contracts that have an original expected duration of one year or less or the revenue is recognized in accordance with IFRS 15.B16, i.e., the revenue to be recognized directly corresponds to the value of the service to be rendered and invoiced.

SICK exercises the practical expedient to recognize the costs to obtain contracts with customers immediately in profit or loss if the asset resulting from recognizing these costs would be written down within a year. The Group did not incur any significant costs to obtain contracts with customers or any significant costs to fulfill a contract that qualify for capitalization.

The method applicable in the prior year is described in the following:

Revenue contains sales of products and services as well as freight and packaging revenue, less discounts and rebates. Revenue for sales of products is recognized upon transfer of risk and title to the customer when the compensation has been contractually agreed or is determinable and the associated receivables are likely to be settled. If the contract prescribes acceptance by the customer, the revenue is not recognized until this acceptance has taken place. Revenue from the provision of services is recognized when the services are rendered.

Recognition of expenses and other income

Operating expenses are recognized upon utilization of the underlying services or on the date they are incurred. Interest expenses and income are recognized in the income statement in the period in which they are incurred or generated.

Goodwill

After initial recognition, goodwill is measured at cost less any accumulated impairment losses. Goodwill is not subject to systematic amortization, but tested for impairment at least annually in accordance with IAS 36.

For the purpose of impairment testing, goodwill acquired in a business combination is, from the acquisition date, allocated to each of the Group's cash-generating units that are expected to benefit from the business combination. Further details are presented in section F. (14) "Intangible assets."

Intangible assets (excluding goodwill)

Intangible assets acquired separately are initially measured at cost. The cost of an intangible asset acquired within the scope of a business combination is its fair value on the date of acquisition. Following initial recognition, intangible assets are carried at cost less any accumulated amortization and any accumulated impairment losses. Internally generated intangible assets are capitalized provided that the requirements are met. As regards intangible assets, it is initially important to determine whether they have a finite or an indefinite useful life. Intangible assets with a finite useful life are amortized over their useful life and tested for impairment whenever there is an indication that the intangible asset may be impaired. The amortization period and the amortization method for an intangible asset with a finite useful life are reviewed at the end of each fiscal year at the latest. Changes in the expected useful life or the expected pattern of consumption of the future economic benefits embodied in the asset are accounted for by changing the amortization period or method, as appropriate, and treated as changes in accounting estimates. Amortization of intangible assets with a finite useful life is reported in the income statement under the expense category "depreciation" and "amortization." Intangible assets with an indefinite useful life are tested for impairment at least once a year, either individually or at the cash-generating unit level. Such intangibles are not subject to systematic amortization.

Purchased industrial rights and similar rights and assets as well as licenses to such rights and assets disclosed under intangible assets are amortized on a straight-line basis over a useful life of three to eight years.

Development costs are capitalized at cost if the recognition criteria of IAS 38 are met. The capitalized development costs generally relate to product innovations; the other internally generated intangible assets include process-related developments as well as software developments.

Production costs comprise the costs directly allocable to the development process. Borrowing costs are capitalized if the recognition criteria are met. Capitalized development costs and other internally generated intangible assets are amortized systematically over a useful life of four to six years.

Property, plant and equipment

Property, plant and equipment is measured at cost less systematic depreciation over the estimated useful life. These costs comprise the costs for replacement parts which are recognized at the time they are incurred, provided they meet the recognition criteria. The cost of internally generated plant and equipment includes all costs which can be directly allocated to the production process as well as an appropriate portion of production-related overheads. This also includes production-related depreciation, a proportionate amount of production-related administrative expenses as well as pro rata welfare costs. Borrowing costs for long-term construction projects are capitalized if the recognition criteria are met. Depreciation of property, plant and equipment is mainly charged using the straight-line method of depreciation. The depreciation period and the depreciation method are reviewed at least at each fiscal year end and adjusted for any significant changes.

Specifically, the carrying amounts are based on the following useful lives:

Buildings	10 – 50 years
Technical equipment and machinery	3 – 15 years
Other equipment, furniture and fixtures	3 – 15 years

Impairment losses

An impairment test is performed for all intangible assets (including goodwill) and items of property, plant and equipment if the situation or changes in circumstances indicate that the carrying amount of the assets exceeds the recoverable amount. In addition, goodwill is subjected to an annual impairment test.

If the recoverable amount of the asset falls short of the carrying amount, an impairment loss is recognized. The recoverable amount is the higher of the fair value of the assets less costs to sell and the value in use. The fair value less costs to sell is the amount obtainable from the sale of an asset in an arm's length transaction less the costs necessary to make the sale. Value in use is the present value of estimated future cash flows expected to arise from the continuing use of an asset and from its disposal at the end of its useful life. The recoverable amount is determined for each asset individually or, if that is not possible, for the cash-generating unit to which the asset belongs.

With the exception of goodwill, impairment losses recognized in prior years are reversed where there is an indication that the impairment recognized for the asset no longer exists or has decreased. The reversal is posted as a gain in the income statement. An increase or reduction of an impairment loss, however, may not exceed the carrying amount of the asset which would have resulted if no impairment losses had been recognized in prior periods.

Financial instruments

A financial instrument is any contract that gives rise to both a financial asset of one entity and a financial liability or equity instrument of another entity. Pursuant to IFRS 9, financial instruments are classified in the following measurement categories:

- financial assets measured at amortized cost
- financial assets measured at fair value through other comprehensive income
- financial assets measured at fair value through profit or loss
- financial liabilities measured at amortized cost
- financial liabilities measured at fair value through profit or loss

Financial instruments are recognized in the consolidated statement of financial position if a contractual obligation results from the financial instrument. Regular way purchases or sales of financial assets, i.e., purchases or sales under a contract whose terms require delivery of the asset within the time frame established, generally by regulation or convention in the marketplace concerned, are recorded on the date of trading. Financial instruments are initially measured at fair value, or at the transaction price in the case of trade receivables. The Group takes the directly attributable transaction costs into account in the calculation of the carrying amount only if the financial instruments are not measured at fair value through profit or loss.

In the prior year, financial instruments were split into the following classes based on their nature:

- financial assets and liabilities measured at (amortized) cost
- financial assets and liabilities measured at fair value
- finance lease liabilities

Subsequent measurement of financial assets and liabilities pursuant to IAS 39 depended on their classification into the following categories:

- available-for-sale financial assets
- loans and receivables
- financial liabilities measured at amortized cost
- financial assets and financial liabilities held for trading

Financial assets

In compliance with IFRS 9, financial assets are classified on the basis of the business model for managing the financial assets as well as on the basis of the contractual cash flow characteristics of the financial assets. The objective of the Group's business model is to hold the financial assets to collect contractual cash flows.

At the same time, it is examined whether the contractual terms of the financial assets give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

The Group's financial assets are measured at amortized cost provided that the business model is adhered to and the contractual cash flows satisfy the requirements.

The business model for financial assets measured at fair value through other comprehensive income is not only to hold the financial assets, but also to sell them. The contractual terms give rise to specified dates that are solely for payments of principal and interest on the principal amount outstanding.

In general, equity instruments are classified as measured at fair value through profit or loss upon initial recognition. However, an irrevocable option to designate equity instruments as measured at fair value through other comprehensive income may be exercised upon initial recognition. This option is only available if the equity instruments are neither held for trading nor constitute unconditional consideration as part of a business combination. The Group principally holds its equity interests for strategic reasons in order to expand the Group's operating activities. The focus here is not on generating a significant portion of short-term capital gains. Fluctuations in the measurement of equity investments are therefore not expected to have any impact on the income statement. Equity instruments are classified at fair value through other comprehensive income accordingly. These equity instruments are posted to the statement of financial position under other financial assets.

Financial assets that do not meet the requirements to be measured at amortized cost or at fair value through other comprehensive income are designated as measured at fair value through profit or loss. At present, the Group does not make use of the option to measure financial assets at fair value through profit or loss upon initial recognition.

The Group's financial assets mainly include cash and cash equivalents, trade receivables, unlisted financial instruments, loan receivables, other assets, and derivative financial instruments with a positive fair value.

Subsidiaries that are not included in the consolidated financial statements on the grounds of immateriality and that were recognized as available-for-sale financial assets at amortized cost pursuant to IAS 39 are disclosed in section F. (16) "Other financial assets" from the reporting year 2018 onwards and have a carrying amount of EUR 412 k as of January 1, 2018.

In the prior year, the following methods pursuant to IAS 39 applied to financial assets.

Available-for-sale financial assets were non-derivative financial assets that were designated as available-for-sale or were not classified in any of the other categories. After initial measurement, available-for-sale financial assets were measured at fair value with unrealized gains or losses recognized in other comprehensive income until the investment was derecognized, at which time the cumulative gain or loss recorded in other comprehensive income was recognized in the income statement, or determined to be impaired, at which time the cumulative loss recorded in other comprehensive income was recognized in the income statement. Under available-for-sale assets, the Group mainly reported shares in unlisted entities, which were valued at amortized cost, since the fair value could not be determined reliably due to a lack of market values. A sale was not planned.

If the fair values of available-for-sale financial assets fell below cost and there was objective evidence, such as a downgraded credit rating or decline in earnings capability, that the asset was impaired, the Group reversed the accumulated loss recognized in other comprehensive income and released it to the consolidated income statement. The Group reinstated impairment losses of debt instruments in subsequent periods if the reasons for impairment ceased to apply.

The Group measured financial assets classified as loans and receivables at amortized cost less impairments using the effective interest method.

Financial liabilities

With the exception of the derivative financial instruments, financial liabilities are measured at amortized cost using the effective interest method. Upon initial recognition, financial liabilities are measured at fair value less transaction costs that are directly allocable to the financial liability.

The Group's financial liabilities chiefly include trade and other payables, bank overdrafts, loans and finance lease liabilities as well as derivative financial instruments with a negative fair value.

For further information, reference is made to section G. (37) "Financial instruments."

Impairment of financial assets

IFRS 9 introduces an impairment model based on the expected credit losses model. The new model applies to all financial assets (debt instruments) that are carried at amortized cost or at fair value through other comprehensive income. The expected losses model allocates impairment to three stages.

The Group recognizes a loss allowance for expected credit losses on all debt instruments that are not measured at fair value through profit or loss. Expected credit losses are based on the difference between the contractual cash flows to be paid in accordance with the contract and the total cash flows expected to be received by the Group, discounted using an approximation of the original effective interest rate. The expected cash flows include the cash flows from the sale of collateral held or other credit enhancements that are a major component of the contractual terms.

Expected credit losses are recognized in two steps. For financial instruments the credit risk of which has not increased significantly since initial recognition, a risk provision is recognized in the amount of the expected credit losses based on a default within the next twelve months. For financial instruments the credit risk of which has increased significantly since initial recognition, the entity must recognize a risk provision in the amount of the expected credit losses over residual term, regardless of when the default occurs.

The Group applies IFRS 9's simplified impairment model to trade receivables and recognizes the lifetime expected credit loss. The Group uses specific provision matrices for each region and entity to calculate the expected credit losses. The impairment factors specific to maturity are based on historical and prospective information, including forecasts on economic conditions (such as gross domestic product).

The risk provision for cash and cash equivalents is set up on the basis of current market data and internal risk assessments.

Financial assets are derecognized as soon as they are deemed by appropriate judgment to be uncollectible, for example after the end of insolvency proceedings, after court rulings, or depending on other circumstances in the local law. A central monitoring and local collection management system counters the risk of bad debts. This includes regular credit ratings, the conclusion of credit insurance policies, and – particularly in the export business – issuing letters of credit.

For materiality and clarity reasons, the impairment losses recorded in the income statement pursuant to IAS 1.82 (ba) in the period are not disclosed separately in section G. (36 d) "Credit risks." Bad debt allowances are posted under other operating expenses.

In the prior year, impairments that serve to take account of the expected default risks were recognized in the form of allowances for individual risks or general credit risks in accordance with IAS 39. To determine allowances for general credit risks, financial assets that could potentially be impaired were grouped together by similar credit risk profiles and collectively tested for impairment and impairment loss was recognized as necessary. The carrying amount of the asset was reduced through the use of an allowance account, and the amount of the loss was recognized in the income statement. Receivables and associated allowances were derecognized when there was no realistic prospect of future recovery and all collateral had been realized or had been transferred to the Group.

Contract balances

A contract asset is an entity's right to consideration in exchange for goods or services that the entity has transferred to a customer.

A receivable is an entity's right to consideration that is unconditional.

A contract liability is an entity's obligation to transfer goods or services to a customer for which the entity has received consideration or an amount of consideration is due from the customer. This includes payments on account on contracts with customers as well as unrealized revenue from service contracts.

Cash and cash equivalents

Cash and cash equivalents include cash, demand deposits, and other short-term, highly liquid financial assets with an original term to maturity of less than three months. They are recognized at face value less a risk provision. The risk provision is recognized on the basis of current market data and internal risk assessments. Further information about the impairment can be found in section C. "Impairment of financial assets."

Derivative financial instruments and hedge accounting

The Group uses derivative financial instruments such as forward exchange contracts to hedge against exchange rate risks. Such derivative financial instruments are initially recognized at fair value on the date on which a derivative contract is entered into and are subsequently remeasured at fair value. Derivatives are carried as financial assets when the fair value is positive and as financial liabilities when the fair value is negative.

The Group did not make use of the option to recognize hedges for the derivatives entered into in fiscal year 2018 or 2017. If hedges are recognized in the future, the Group will apply the new rules in IFRS 9.

Offsetting of financial instruments

Financial assets and financial liabilities are offset and the net amount reported in the consolidated statement of financial position if there is a currently enforceable legal right to offset the recognized amounts and there is an intention to settle on a net basis, or to realize the assets and settle the liabilities simultaneously.

Inventories

Inventories are measured at the lower of cost and net realizable value. In addition to direct costs, cost includes an appropriate portion of necessary materials and production overheads as well as production-related depreciation that can be directly allocated to the production process. Administrative and welfare costs that can be allocated to the production process are also considered. Inventories having a similar nature are measured using the weighted average cost method. Borrowing costs are not capitalized. Cost of materials contain appropriate allowance for inventory risks associated with slow-moving stocks, reduced salability, etc. When the circumstances that previously caused inventories to be written down below cost no longer exist, the write-down is reversed.

Deferred taxes

Deferred tax assets and liabilities are recognized for all temporary differences between the carrying amounts in the tax accounts and under IFRS in accordance with the balance sheet liability method. Deferred tax assets also include tax credits that result from the expected utilization of existing unused tax losses in subsequent years and the realization of which can be reasonably assumed. Deferred tax assets and liabilities are measured at the tax rates enacted or substantively enacted in the individual countries at the time of realization.

The carrying amount of a deferred tax asset is reviewed at the end of each reporting period and reduced to the extent that it is no longer probable that sufficient taxable profit will be available to allow the benefit of part or all of that deferred tax asset to be utilized. Unrecognized deferred tax assets are reviewed at the end of each reporting period and recognized to the extent that it has become probable that future taxable profit will allow the deferred tax asset to be realized.

For transactions and other events recognized in other comprehensive income, any taxes on income are also reported in other comprehensive income, not through profit or loss.

Deferred tax assets and deferred tax liabilities are offset if the Group has a legally enforceable right to offset current tax assets and current tax liabilities and these relate to income taxes levied by the same taxation authority on the same taxable entity.

Treasury shares

Any treasury shares that the Group acquires are recognized at cost and deducted from equity. No gain or loss is recognized in the income statement on the purchase, sale, issue, or cancellation of the Group's treasury shares.

Share-based payments

Members of the Executive Board of SICK AG receive a remuneration component in the form of equity instruments that are measured at fair value. For more details, reference is made to the comments on the remuneration of the members of the Executive Board of SICK AG in section G. (39) "Related party disclosures."

Provisions for pensions and similar obligations

The Group's post-employment benefits include both defined contribution plans and defined benefit plans.

The Group's net obligation in terms of defined benefit plans is calculated separately for each plan by estimating the future payments that the employees have earned in the current period and in earlier periods. This amount is discounted, and the fair value of any plan assets is deducted from that figure.

The calculation of the defined benefit obligations is carried out annually by a recognized actuary using the projected unit credit method. If the calculation results in a potential asset for the Group, the asset recognized is limited to the present value of any economic benefit in the form of any future reimbursements from the plan or reductions in future contributions to the plan. Any applicable minimum funding requirements are taken into consideration in the calculation of the present value of any economic benefit.

Remeasurements of the net liability from defined benefit plans are recognized directly in other comprehensive income. Remeasurement involves the actuarial gains and losses, the return on plan assets (excluding interest), and the effect of any limit on a defined benefit asset (excluding interest). The Group calculates the net interest expenses (income) on the net liability (asset) from defined benefit plans for the reporting period by applying the discount rate that was used to measure the defined benefit obligations at the beginning of the annual reporting period. This discount rate is applied to the net liability (asset) from defined benefit plans as of that date. Any changes are taken into account which result in the net liability (asset) from defined benefit plans during the reporting period as a result of contributions and benefit payments. Net interest expenses and other expenses for defined benefit plans are recognized in the interest result.

If the plan benefits are amended or a plan is curtailed, the resulting amendment is recognized directly in profit or loss. The Group recognizes gains and losses from the settlement of a defined benefit plan on the settlement date.

Under defined contribution plans, the entity pays fixed contributions into a state or private fund in accordance with legal or contractual provisions or on a voluntary basis and will have no legal or constructive obligation to pay further contributions. The current contribution payments are disclosed in the personnel expenses of the respective year.

Further details about pension obligations are given in section F. (28) "Provisions and other liabilities."

Other provisions

Pursuant to IAS 37 "Provisions, Contingent Liabilities and Contingent Assets," provisions are recognized when an entity has a current obligation from a past event that will probably lead to an outflow of resources embodying economic benefits in future and a reliable estimate can be made of the amount of the obligation. The amount recognized as a provision for recognizable risks and uncertain obligations is based on its probability of occurrence and is not offset against rights of recourse. The amount needed to settle the obligation also includes any expected cost increases at the end of the reporting period. Provisions for warranty claims are recognized taking account of the past or estimated future claims pattern. Non-current provisions due in more than one year are discounted where the effect of the time value of money is material.

Accounting for leases – the Group as the lessee

Leases are classified as finance leases if all the risks and rewards incidental to ownership of an asset have been transferred to the lessee. All other leases are operating leases.

At the inception of the lease, the Group recognizes finance leases and the corresponding liabilities to the lessor as assets in its statement of financial position at amounts equal to the fair value of the leased asset or, if lower, the present value of the future minimum lease payments, and finance lease liabilities. Depreciation is charged over the shorter of the lease term of the asset and its useful life. The outstanding liability is reduced over the lease term. At the beginning of the lease, the difference between the total lease obligation and the fair value of the leased asset is the finance charge which is allocated to each period during the lease term so as to produce a constant periodic rate of interest on the remaining balance of the liability.

Lease and rent payments paid by the Group under an operating lease are recognized as an expense on a straight-line basis over the lease term.

Government grants

Government grants related to assets are generally deducted from the cost of the subsidized asset.

Government grants related to income are recorded as other operating income to reflect the effect of the corresponding expenses on profit or loss.

Borrowing costs

Borrowing costs directly attributable to the acquisition, construction, or production of an asset that necessarily takes a substantial period of time to get ready for its intended use or sale are capitalized as part of the cost of the respective assets. All other borrowing costs are expensed in the period they occur. Borrowing costs consist of interest and other costs that an entity incurs in connection with the borrowing of funds. The Group capitalizes borrowing costs for all qualifying assets.

Fair value measurement

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. This applies regardless of whether the price is directly observable or has been estimated using a valuation technique.

When calculating the fair value of an asset or a liability, the Group takes into account certain features of the asset or liability that market participants would also take into consideration when setting the pricing for the purchase of the respective asset or the transfer of the liability as of the measurement date. In these consolidated financial statements, the fair value for measurement and/or disclosure requirements is calculated on this basis.

The fair value is not always available as a market price. Often it has to be calculated based on different measurement parameters. Fair value is rated as Level 1, 2 or 3 depending on the availability of observable parameters and the significance of those parameters for the calculation of the fair value as a whole. The breakdown as of the end of each reporting period is based on the following:

- Level 1: quoted (unadjusted) prices in active markets for identical assets or liabilities
- Level 2: other techniques for which all inputs which have a significant effect on the recorded fair value are observable, either directly or indirectly (derived from prices)
- Level 3: techniques which use inputs that have a significant effect on the recorded fair value that are not based on observable market data

Contingent liabilities/ assets

Contingent liabilities pursuant to IAS 37 “Provisions, Contingent Liabilities and Contingent Assets” are defined as a possible obligation whose existence will be confirmed only by the occurrence or non-occurrence of one or more uncertain future events not wholly within the control of the entity. This pertains to obligations which are not likely to lead to an outflow of resources embodying economic benefits or for which it is not possible to measure the amount of the obligation with sufficient reliability. Pursuant to IAS 37, contingent liabilities are not disclosed in the statement of financial position. They are, however, disclosed in the notes unless the possibility of an outflow of resources embodying economic benefits is remote.

Contingent assets are not shown in the statement of financial position. However, they are disclosed in the notes to the financial statements when an inflow of economic benefits is probable.

Exemption from the duty of stock corporations to prepare annual financial statements

For fiscal year 2018, the following subsidiaries made use of the exemption pursuant to Sec. 264 (3) HGB:

- SICK Engineering GmbH, Ottendorf-Okrilla
- SICK Management GmbH, Waldkirch
- SICK STEGMANN GmbH, Donaueschingen
- SICK Vertriebs-GmbH, Düsseldorf

D. CONSOLIDATED STATEMENT OF CASH FLOWS

General

The consolidated statement of cash flows presents the source and utilization of cash flows. In accordance with IAS 7 "Statement of Cash Flows," a distinction is made in the statement of cash flows between cash flows from operating activities and cash flows from investing and financing activities.

The cash and cash equivalents presented in the statement of cash flows contain all cash and cash equivalents shown in the statement of financial position, i.e., cash in hand, checks, and bank balances, provided they are available within three months. Cash and cash equivalents are not subject to any restrictions.

Cash flows from investing activities and financing activities are derived from the actual cash payments, while cash flows from operating activities are calculated indirectly from consolidated net income. When performing the indirect calculation, changes in items of the statement of financial position considered in connection with ordinary activities are adjusted for effects from currency translation and from acquisition and sales of subsidiaries and other business units. Interest paid and received and included as cash inflow from operating activities as well as dividends received and income taxes paid are disclosed separately. Investing activities comprise additions to property, plant and equipment and financial assets as well as additions to purchased intangible assets. This item also shows any additions resulting from the recognition of development costs and other internally generated intangible assets.

E. NOTES TO THE CONSOLIDATED INCOME STATEMENT

(1) Sales

in EUR k	2018	2017
Factory automation	911,716	857,642
Logistics automation	446,500	402,086
Process automation	278,572	251,825
TOTAL	1,636,788	1,511,553

in EUR k	2018	2017
Germany	317,719	313,571
Europe, Middle East, and Africa (EMEA)	597,557	550,927
North, Central, and South America (Americas)	353,140	320,744
Asia-Pacific	368,372	326,311
TOTAL	1,636,788	1,511,553

(2) Own work capitalized

in EUR k	2018	2017
Capitalized development work	9,281	8,575
Own work for internally generated intangible assets and property, plant and equipment	15,234	15,228
TOTAL	24,515	23,803

(3) Cost of materials

in EUR k	2018	2017
Cost of materials and supplies and of purchased goods	494,029	427,254
Cost of purchased services	23,725	23,441
TOTAL	517,754	450,695

(4) Personnel expenses and number of employees

in EUR k	2018	2017
Wages and salaries	591,288	541,222
Social security, pension, and other benefit costs	108,061	98,615
TOTAL	699,349	639,837

The wages and salaries item includes termination benefits of EUR 1,809 k (prior year: EUR 1,487 k).

EMPLOYEES

	2018			2017		
	Germany	Abroad	Total	Germany	Abroad	Total
Average headcount (excluding trainees):	5,166	3,815	8,981	4,717	3,445	8,162
of which in R&D	(1,004)	(166)	(1,170)	(905)	(154)	(1,059)
Trainees	295	69	364	276	48	324
TOTAL	5,461	3,884	9,345	4,993	3,493	8,486

(5) Depreciation and amortization

This item pertains to intangible assets and property, plant and equipment.

(6) Other operating expenses

in EUR k	2018	2017
Administrative and selling expenses	127,633	112,884
Cost of purchased services and repairs	110,039	96,902
Rent and lease expenses	29,611	26,723
Other expenses	21,702	22,894
TOTAL	288,985	259,403

(7) Other operating income

In addition to cost reimbursements, other operating income includes income from subsidies and other sales.

(8) Currency results

in EUR k	2018	2017
Exchange gains	31,975	49,754
Exchange losses	39,765	55,463
TOTAL	-7,790	-5,709

(9) Net investment income/expense

in EUR k	2018	2017
Expense from investments accounted for using the equity method	93	327
Income from other equity investments	5	0
TOTAL	98	327

(10) Interest expense

This item includes interest and similar expenses. For details on the interest effects in relation to pension provisions, reference is made to section F. (28) "Provisions and other liabilities."

In the reporting period, borrowing costs of EUR 40 k (prior year: EUR 65 k) were capitalized in non-current assets. The interest rate used in 2018 was 1.5 percent (prior year: interest rates ranging between 1.7 and 1.8 percent).

(11) Interest income

This item contains other interest and similar income of EUR 267 k (prior year: EUR 233 k).

(12) Income tax

in EUR k	2018	2017
Current income taxes		
current tax expense/ income (-) for the reporting period	33,645	39,436
tax expense/ income (-) relating to other periods	1,885	-660
Deferred tax expense/ income (-)		
from temporary measurement differences	-4,810	2,433
from unused tax losses	-258	-518
TOTAL	30,462	40,691

The current tax expense is reduced by EUR 152 k (prior year: EUR 99 k) through the use of previously unrecognized tax losses.

Current income tax expense includes corporate income tax (including solidarity surcharge) and trade tax of German entities and comparable income taxes of foreign entities. Withholding taxes are also disclosed here.

As in the prior year, no deferred taxes were recognized as of the end of the reporting period on retained earnings by subsidiaries held for the foreseeable future. Timing differences in connection with investments in subsidiaries on which no deferred tax liabilities have been recognized amount to around EUR 13,835 k (prior year: EUR 6,753 k).

Of the deferred taxes recognized in the statement of financial position, an amount of EUR 7,225 k (prior year: EUR 7,073 k) relates to transactions that directly increase equity as of the reporting date.

The income tax expense reported as of the end of the reporting period amounting to EUR 30,462 k (prior year: EUR 40,691 k) is EUR 2,260 k lower (prior year: EUR 1,584 k) than the estimated tax expense of EUR 32,722 k (prior year: EUR 42,275 k). The table below reconciles the estimated tax expense to the income taxes reported:

in EUR k	2018	2017
Earnings before tax	112,835	145,776
Theoretical tax rate (%)	29.0	29.0
Estimated tax expense	32,722	42,275
Reasons for the change in theoretical tax expense:		
Deviating foreign tax rates	-6,923	-5,792
Tax rate change	0	3,843
Taxes from other periods	1,885	-660
Tax-free income	0	-1,088
Non-deductible expenses	2,225	1,969
Tax incentives	-536	-385
Use of unused tax losses that have not yet been recognized	-152	-99
Other	1,241	628
INCOME TAXES REPORTED	30,462	40,691
Effective tax rate (%)	27.0	27.9

As in the prior year, the calculation of the estimated tax expense for fiscal year 2018 is based on a theoretical tax rate of 29 percent. This rate is derived from the corporate income tax rate applicable in Germany of 15 percent plus the solidarity surcharge of 5.5 percent of that figure and an average trade tax burden in Germany of 13.2 percent.

Deferred tax assets and liabilities relate to the following:

	Deferred tax assets		Deferred tax liabilities	
in EUR k	2018	2017	2018	2017
Intangible assets	440	84	7,680	8,364
Property, plant and equipment/ financial assets	126	120	4,263	5,061
Inventories	17,940	16,931	2,382	1,617
Other current assets	2,202	1,183	5,364	4,554
Liabilities	27,581	25,209	517	810
Unused tax losses	1,855	1,598	0	0
Gross value	50,144	45,125	20,206	20,406
Offsetting	-18,366	-18,170	-18,366	-18,170
CARRYING AMOUNT	31,778	26,955	1,840	2,236

The recognition of deferred tax assets is based on management's estimate that sufficient taxable profits will be available in future and that these will lead to realization of the capitalized deferred taxes. This estimate is based on the findings of the past fiscal years as well as on the estimated taxable income.

Unused tax losses developed as follows:

in EUR k	2018	2017
Unused tax losses		
on which no deferred tax assets were recognized	4,087	4,587
of which available for offsetting for more than ten years	(4,087)	(4,587)
on which deferred tax assets were recognized	6,539	5,736
TOTAL	10,626	10,323

(13) Earnings per share

in EUR k	2018	2017
Consolidated net income	82,373	105,085
of which attributable to non-controlling interests	-637	-761
OF WHICH ATTRIBUTABLE TO SHAREHOLDERS OF SICK AG	81,736	104,324
Number of shares (weighted average) in thousands	26,212	26,208
Earnings per share (basic and diluted) in EUR/share	3.12	3.98

In accordance with IAS 33, basic earnings per share are calculated by dividing consolidated net income for the year attributable to the shareholders of SICK AG by the weighted average number of shares outstanding during the year. As SICK AG has only issued no-par value bearer shares, there are no dilutive effects.

F. NOTES TO THE CONSOLIDATED STATEMENT OF FINANCIAL POSITION

For a presentation of the consolidated statement of changes in non-current assets, reference is made to attachment A1 of these notes to the consolidated financial statements.

(14) Intangible assets

The goodwill acquired from business combinations was allocated to the factory automation, logistics automation, and process automation cash-generating units for impairment testing. These correspond to the business fields. The carrying amounts of the goodwill allocated to the cash-generating units factory automation, logistics automation, and process automation amount to EUR 10,352 k (prior year: EUR 10,631 k), EUR 6,675 k (prior year: EUR 6,744 k), and EUR 7,479 k (prior year: EUR 7,551 k) respectively.

The recoverable amount of the factory automation, logistics automation, and process automation cash-generating units is determined based on a value in use calculation. To calculate this, cash flow projections are based on medium-term planning approved by the management for a three-year period. The financial planning is adjusted to reflect the current information available. Beyond the three-year period, an appropriate growth factor customary for the industry is assumed for the following two years. For the following years, a terminal growth rate of one percent was used.

This planning is based on appropriate assumptions on macroeconomic trends, expected growth rates in the relevant markets and market shares as well as historical developments. The figures allocated to the key assumptions are based on external sources of information. A discount rate of 10.5 percent (prior year: 10.8 percent) before taxes has been used for the cash flow forecast.

The actual recoverable amounts exceed the carrying amounts of the factory automation, logistics automation, and process automation cash-generating units by EUR 873,772 k (prior year: EUR 776,103 k), EUR 371,530 k (prior year: EUR 360,591 k), and EUR 230,466 k (prior year: EUR 199,733 k) respectively.

An increase in the discount rate of one percent or a decrease in long-term growth of one percent was assumed in a sensitivity analysis for the cash-generating units. Based on this, SICK came to the conclusion that the goodwill of none of the cash-generating units would need to be impaired.

The carrying amounts of the capitalized development costs and of the other internally generated intangible assets amount to EUR 28,132 k (prior year: EUR 25,789 k).

The following amounts were recognized in profit or loss for R&D activities in relation to product innovations:

in EUR k	2018	2017
Research costs and non-capitalizable development costs	185,457	161,621
Amortization of development costs	7,064	7,770
TOTAL	192,521	169,391

Expenses for other internally generated intangible assets are not included in the amounts listed.

(15) Investments accounted for using the equity method

The table below provides a summary of financial information for two joint ventures and an associate that are individually immaterial. These entities are presented in the list of group entities in attachment A6 of the notes to the consolidated financial statements.

in EUR k	2018	2017
Carrying amounts of the shares	4,164	4,023
Share in:		
Income from continuing operations	196	417
COMPREHENSIVE INCOME	196	417

(16) Other financial assets

in EUR k	2018	2017
Other equity investments	1,643	523
Sundry other financial assets	2	12
TOTAL	1,645	535

(17) Inventories

in EUR k	2018	2017
Materials and supplies	170,961	113,756
Work in process	108,853	94,038
Finished goods and goods for resale	98,985	84,327
Payments on account	1,621	252
TOTAL	380,420	292,373

Based on the gross value, the value of the inventories was impaired by EUR 37,661 k (prior year: EUR 39,979 k).

(18) Trade receivables

in EUR k	2018	2017
Trade receivables due from		
third parties	333,561	287,671
entities accounted for using the equity method	793	628
TOTAL	334,354	288,299

Appropriate allowance is made for any risk of receivables being uncollectible or other risks. As in the prior year, the receivables are generally due in up to one year.

(19) Tax receivables

This item records income tax receivables.

(20) Other assets

in EUR k	2018	2017
Other tax assets	15,237	14,430
Prepaid expenses	8,310	7,231
Derivative financial instruments (held for trading)	702	1,612
Sundry other	33,870	28,344
TOTAL	58,119	51,617

(21) Cash and cash equivalents

Bank deposits payable on demand are reported in this item as well as checks and cash. Changes in cash and cash equivalents are shown in the statement of cash flows.

(22) Issued capital

As in the prior year, capital stock totals EUR 26,405,400 and is divided into a total of 26,405,400 no-par bearer shares. The imputed nominal value amounts to EUR 1.00 per share.

On the basis of the resolution of the Annual General Shareholders' Meeting of May 12, 2015, the Executive Board was authorized, subject to the approval of the Supervisory Board, to acquire – once or several times – up to 2,640,540 treasury shares for the purpose of redemption or resale in the period up to May 11, 2020.

(23) Capital reserves

The capital reserves relate exclusively to share premiums in connection with the capital increases implemented at SICK AG and treasury shares transferred. Owing to the provisions of the German Stock Corporation Act, dividends may not be distributed from the capital reserves.

(24) Treasury shares

On December 31, 2018, SICK AG had 191,773 (prior year: 196,911) treasury shares with a nominal value of EUR 192 k (prior year: EUR 197 k); as in the prior year, this is equivalent to 0.7 percent of the capital stock.

NO-PAR VALUE SHARES

in EUR k	2018	2017
Opening balance	26,208,489	26,205,240
Acquisition of treasury shares	-1,062	-1,451
Disposal of treasury shares	+6,200	+4,700
CLOSING BALANCE	26,213,627	26,208,489

(25) Revenue reserves

Revenue reserves include the profits of SICK AG and consolidated subsidiaries earned in prior years and not yet distributed as well as additions due to equity-settled share-based payment transactions. In addition, currency translation differences of EUR -5,475 k (prior year: EUR -4,752 k) are also reported here as well as losses from the remeasurement of pension obligations of EUR -25,786 k (prior year: losses of EUR -25,557 k) less deferred taxes of EUR 7,225 k (prior year: EUR 7,073 k).

(26) Proposed dividend

Pursuant to Sec. 58 (2) AktG ("Aktiengesetz": German Stock Corporation Act), the proposed SICK AG dividend is based on the retained earnings reported in the commercial-law annual financial statements of SICK AG.

Pursuant to the resolution of the Annual General Shareholders' meeting of SICK AG of May 16, 2018, a dividend of EUR 1.00 per share was distributed from the retained earnings of SICK AG as of December 31, 2017 for fiscal year 2017, i.e., taking into account treasury shares totaling EUR 26,208 k that are not entitled to dividends.

The company plans to distribute a dividend of EUR 1.00 per share for the past fiscal year 2018 or a total of EUR 26,214 k including treasury shares that are not entitled to dividends.

The individual components of equity and their development in 2018 and 2017 are shown in the consolidated statement of changes in equity.

(27) Non-current and current financial liabilities

in EUR k	2018 of which due in			2017 of which due in		
	Total	≤ one year	> one year	Total	≤ one year	> one year
Liabilities to banks	230,866	154,656	76,210	109,887	25,064	84,823
Finance lease liabilities	314	190	124	1,928	1,778	150
TOTAL	231,180	154,846	76,334	111,815	26,842	84,973

Financial liabilities due in more than five years come to a total of EUR 6,847 k (prior year: EUR 5,825 k).

Non-current liabilities owed to banks are predominantly fixed-interest loans. The interest rates range from 0.73 to 2.50 per cent (prior year: from 0.83 to 2.50 percent).

Non-current liabilities from leases are subject to customary market interest rates.

For additional information about the interest rate risks, reference is made to section G. (36) "Financial risk management."

Financial liabilities do not include any secured liabilities.

in EUR k	Jan. 1, 2018	Cash	Non-cash	Dec. 31, 2018
Liabilities to banks	109,887	120,833	146	230,866
Finance lease liabilities	1,928	-1,614	0	314
TOTAL	111,815	119,219	146	231,180

(28) Provisions and other liabilities

Non-current provisions and other liabilities break down as follows:

in EUR k	2018	2017
Provisions for pensions and similar obligations	73,421	71,166
Other non-current provisions	16,356	14,916
Other non-current liabilities	352	516
TOTAL	90,129	86,598

Other non-current liabilities include non-current contract liabilities. For further information, reference is made to section G. (31) "Contract liabilities."

PROVISIONS FOR PENSIONS AND SIMILAR OBLIGATIONS

Pension provisions are recorded as a result of benefit plans for old age, disability, and surviving dependents' pension obligations. The benefits vary according to local legal, tax, and economic conditions and are usually based on the length of service and on salary.

The Group's post-employment benefits include both defined contribution plans and defined benefit plans.

In the case of defined contribution plans, the company makes voluntary contributions to state or private pension funds based on legal or contractual provisions. No further payment obligations arise for the company from the payment of contributions. The current contribution payments are disclosed as a personnel expense for the respective year. Not including contributions to the statutory pension insurance, these amounted to EUR 8,109 k in total in the fiscal year 2018 (prior year: EUR 8,156 k). The contributions to the statutory pension insurance in Germany came to EUR 29,340 k (prior year: EUR 26,195 k) in the fiscal year.

In addition, some of the company pension schemes are based on defined benefit plans, which guarantee the beneficiaries lifelong monthly old-age pensions when they reach retirement age. These are co-funded by the company and by the employees.

If pension obligations are reinsured with insurance firms, these employer's liability insurance claims are netted with the provisions and disclosed as plan assets if the criteria of IAS 19 are satisfied.

The amounts recognized in the income statement are as follows:

in EUR k	2018	2017
Current service cost	4,894	4,694
Interest expense / interest income	879	879
TOTAL	5,773	5,573

The amounts cited are generally recorded in the personnel expense for the period; the interest components from the obligations are reported as interest expense.

The defined benefit obligations developed as follows:

in EUR k	2018	2017
As of January 1	98,301	95,581
Expenses recognized in profit or loss		
Current service cost	4,894	4,694
Interest expense	1,540	1,471
Benefits paid	-3,910	-3,059
Amounts recognized in other comprehensive income		
Change in financial assumptions	-719	-29
Change in demographic parameters	470	-635
Experience adjustments, gains/losses	281	1,203
Employee contributions	434	405
Exchange rate differences / other changes	1,030	-1,330
AS OF DECEMBER 31	102,321	98,301

The average term of the defined benefit obligations in Germany is between 5.6 and 8.6 years (prior year: 5.9 and 10.1 years).

The plan assets chiefly concern pledged employer's liability insurance claims against insurance companies.

Changes in the fair value of plan assets are as follows:

in EUR k	2018	2017
As of January 1	27,135	26,063
Expenses/ income recognized in profit or loss		
Interest income	417	384
Amounts recognized in other comprehensive income		
Return on plan assets	5	-36
Experience adjustments, gains/ losses	-53	-18
Employer contributions	2,515	2,428
Benefits paid	-1,449	-908
Exchange rate differences/ other changes	330	-778
AS OF DECEMBER 31	28,900	27,135

The Group expects to contribute EUR 1,840 k to its defined benefit pension plans in 2019 (prior year: EUR 1,740 k).

Pension payments of EUR 3,440 k (prior year: EUR 2,708 k) are expected to be made in the subsequent year as part of defined benefit obligations.

The amounts recognized in the statement of financial position for defined benefit obligations are as follows:

in EUR k	2018	2017
Defined benefit obligation	102,321	98,301
Fair value of plan assets	-28,900	-27,135
PROVISIONS FOR PENSIONS AND SIMILAR OBLIGATIONS	73,421	71,166

The reimbursement rights do not qualify as plan assets, as they contain unpledged contributions to employer's liability insurance. These developed as follows:

in EUR k	2018	2017
As of January 1	13,086	11,197
Expenses/ income recognized in profit or loss		
Interest income	243	208
Amounts recognized in other comprehensive income		
Experience adjustments, gains/ losses	-144	46
Employer contributions	1,694	1,646
Benefits paid	-22	-11
AS OF DECEMBER 31	14,857	13,086

The quantitative sensitivity analysis leads to the following effect on the defined benefit obligations of the significant entities subject to these changes in key assumptions:

in EUR k	2018	2017
Discount rate (+1%)	-5,743	-5,886
Discount rate (-1%)	7,133	7,318
Future salary development (-0.5%)	-247	-309
Future salary development (+0.5%)	255	308
Future pension development (-0.25%)	-1,163	-1,228
Future pension development (+0.25%)	1,214	1,270
Life expectancy (+1 year)	3,432	3,216

The method used to calculate the sensitivity of the obligations to the authoritative actuarial assumptions was the same as that used to calculate the obligation. The effects of the changes in assumptions were determined separately in each case. As a result, possible interdependencies were not analyzed. If a number of assumptions are changed simultaneously, the total impact does not necessarily equate to the sum of the individual effects.

The following mortality tables were used for the main countries as of December 31, 2018:

- Germany: Heubeck 2018G mortality tables (modified)
- Switzerland: BVG 2015

The calculation of pension provisions is based on the following assumptions:

in %	Germany 2018	Germany 2017	Switzerland 2018	Switzerland 2017
Discount rate as of December 31	1.75	1.75	1.0	0.70
Future salary development	3.00	3.00	1.75	1.75
Future pension development	2.00	2.00	0.00	0.00

OTHER PROVISIONS

Other non-current and current provisions developed as follows:

in EUR k	Jan. 1, 2018	Exchange rate differences/ changes in the basis of consolidation	Utilization	Reversal	Additions	Discount rate adjustment	Dec. 31, 2018
Personnel and welfare expense	14,796	-75	2,340	170	2,677	132	15,020
Warranties and onerous contracts	12,333	59	6,993	2,282	9,341	0	12,458
Other provisions	8,600	184	2,043	498	4,246	20	10,509
TOTAL	35,729	168	11,376	2,950	16,264	152	37,987

The provisions for personnel and welfare expense essentially comprise special German phased retirement obligations ("Altersteilzeit"), long-service bonus obligations, severance payments, and similar obligations.

The provisions for warranties and onerous contracts mainly contain obligations from statutory warranty and non-contractual warranty agreements.

Sundry other provisions account for various discernible individual risks and contingent liabilities based on their probable occurrence.

Other provisions are classified based on their expected utilization as follows:

in EUR k	2018 of which due in			2017 of which due in		
	Total	≤ one year	> one year	Total	≤ one year	> one year
Personnel and welfare expense	15,020	1,358	13,662	14,796	2,381	12,415
Warranties and onerous contracts	12,458	12,458	0	12,333	12,333	0
Sundry other provisions	10,509	7,815	2,694	8,600	6,099	2,501
TOTAL	37,987	21,631	16,356	35,729	20,813	14,916

(29) Tax liabilities

This item records income tax liabilities.

(30) Trade payables

in EUR k	2018	2017
Trade payables due to		
third parties	92,634	126,852
entities accounted for using the equity method	163	123
other	543	157
TOTAL	93,340	127,132

As in the prior year, the liabilities are generally due in less than one year.

(31) Contract liabilities

The transition to IFRS 15 results in a new item in the statement of financial position: contract liabilities. These include payments on account received on contracts with customers (prior year: EUR 40,084 k), which had previously been recognized in trade payables, as well as unrealized revenue from service contracts (prior year: EUR 2,087 k), such as maintenance agreements or extended warranty contracts, which had previously been recognized as deferred income in other liabilities.

In 2018, current and non-current contract liabilities break down as follows:

in EUR k	2018		
	Total	≤ one year	> one year
Payments on account received	48,420	48,420	0
Deferred revenue	913	561	352
TOTAL	49,333	48,981	352

Contract liabilities developed as follows in the fiscal year:

in EUR k	2018
As of January 1	42,171
Recognized as revenue in the fiscal year	41,656
Deferred during the reporting period	48,818
AS OF DECEMBER 31	49,333

Non-current contract liabilities are included in non-current provisions and other liabilities in the statement of financial position. For further information, reference is made to section F. (28) "Provisions and other liabilities."

(32) Other liabilities

in EUR k	2018	2017
Liabilities to employees	85,132	86,529
Other tax liabilities	27,695	24,291
Social security liabilities	4,478	3,847
Derivative financial instruments held for trading	1,416	891
Deferred income	66	1,742
Sundry other liabilities	5,345	3,898
TOTAL	124,132	121,198

As in the prior year, other liabilities are generally due in less than one year.

G. OTHER NOTES

(33) Contingent liabilities

As an internationally active company with various fields of business, the Group is exposed to many legal risks. This is especially true of risks relating to warranties, tax litigation, and other legal disputes. The outcome of currently pending and / or future litigation cannot be predicted with certainty. Decisions may therefore result in expenses that are not fully covered by insurance and that may have significant effects on the business and its results. Group management does not expect pending litigation to result in judgments that will significantly and negatively influence the financial position and performance of the Group.

(34) Contingent liabilities and other financial obligations

CONTINGENT LIABILITIES

There are no contingent liabilities subject to disclosure requirements.

OTHER FINANCIAL OBLIGATIONS

in EUR k	2018	2017
Obligations from operating leases		
due within 12 months	23,963	23,215
due in 13 to 60 months	47,314	44,209
due in more than 60 months	29,280	21,691
TOTAL	100,557	89,115

The obligations from operating leases mainly relate to rent for office space, vehicles, and furniture and fixtures. There are prolongation options for individual agreements. There are no significant restrictions imposed on the Group by entering into these lease agreements.

In addition, the Group has purchase obligations (mainly for property, plant and equipment) and the like amounting to EUR 30,219 k (prior year: EUR 18,514 k) which are due in the next 12 months as well as several maintenance agreements and other obligations which will lead indefinitely to other financial obligations of EUR 22,304 k per year (prior year: EUR 23,663 k).

The remaining financial obligations are on a scale customary for the industry.

(35) Leases

LESSEE

The net carrying amounts of assets covered by finance leases break down as follows:

in EUR k	2018	2017
Industrial rights and licenses	53	2,598
Other equipment, furniture and fixtures	223	133
TOTAL	276	2,731

The finance leases are generally designed to include a purchase option and the automatic transfer of ownership. There are no significant restrictions imposed by lease agreements.

Minimum lease installments over the remaining terms of the finance lease agreements and their present value are as follows:

in EUR k	2018	2017
due within 12 months	197	1,780
due in 13 to 60 months	133	152
Minimum lease payments from finance leases	330	1,932
less expected future interest payments	-16	-4
Present value of minimum lease payments	314	1,928
Residual term of liabilities		
due within 12 months	190	1,778
due in 13 to 60 months	124	150
TOTAL	314	1,928

(36) Financial risk management

Through its financial activities, the Group is subject to various risks that are assessed, managed, and monitored by a systematic and documented risk management system which aims to avoid concentrations of risk.

The Group is exposed to market price risks due to changes in exchange rates or interest rates. On the procurement side, the Group faces commodity price risks. Furthermore, the Group is subject to credit risks resulting primarily from trade receivables. There are also liquidity risks in connection with the credit and market price risks or a deterioration in operations or disruptions on the financial markets. These financial risks could impact negatively on the financial position and performance of the Group.

Details of the Group's management of market risks (exchange rates, interest rates, commodity prices), credit risks, and liquidity risks are presented below.

(A) EXCHANGE RATE RISKS

The Group performs foreign currency transactions worldwide and is therefore subject to exchange rate fluctuations which have an effect on the assets and earnings of the Group denominated in euro. Foreign currency risks in financing stem from financial receivables and liabilities in foreign currency and loans in foreign currency granted to finance group entities. As far as operations are concerned, the individual group entities mainly carry out their activities in their functional currency. There is also an intensive exchange of goods and services between the group entities.

Furthermore, there are transaction-related exposures due to financial assets and liabilities listed in foreign currencies. Exchange rate risks are managed by forward exchange contracts and options. Derivative financial instruments are used to hedge future revenue against exchange rate risks. Portions of the exposure expected for the next fiscal year in the most important currencies for the Group are hedged.

Risks from the use of derivative financial instruments include, on the one hand, counterparty risks which can be avoided in the selection process. On the other, they lie in the change in the fair value of derivatives; this is, however, generally counter-balanced by the opposing development of the fair value of the underlying.

The hedged revenue amount is calculated on the basis of the estimate for the coming fiscal year. This is derived mostly from past figures based on revenue which are highly probable. The figures are monitored constantly.

IFRS 7 requires that sensitivity analyses be carried out to present market risks, showing how profit or loss and equity would have been affected by changes in the relevant risk variables. Apart from exchange rate risks, the Group is exposed to interest rate risks. The periodic expenses are determined by relating the hypothetical changes of the risk variables to the financial instruments as of the end of the reporting period. It is assumed that the financial instruments as of the end of the reporting period are representative for the entire year.

Exchange rate risks or currency risks as defined by IFRS 7 arise on financial instruments that are denominated in a currency other than the functional currency and that have a monetary nature; differences from the translation of financial statements to the group currency caused by exchange rates are not taken into account. The relevant risk variables are all currencies (other than the functional currency) in which the Group uses financial instruments.

The currency sensitivity analyses are based on the following assumptions:

- Significant non-derivative monetary financial instruments are either denominated in functional currency or transferred to the functional currency using derivatives.
- Interest income and expenses from financial instruments are also either reported directly in functional currency or transferred to the functional currency using derivatives. As a result, there cannot be any material effects on the volumes under consideration.

The following table demonstrates the sensitivity of the consolidated net income before income tax due to changes in fair value of monetary foreign currency items.

	Change in foreign exchange rates		Effect on earnings	
	in %		in EUR k	
2018			Income (+)	Expense (-)
AUD	+10	-10	518	-518
CNY	+10	-10	5,618	-3,679
GBP	+10	-10	1,406	-1,406
KRW	+10	-10	375	-375
PLN	+10	-10	-101	101
USD	+10	-10	6,420	-6,034
TOTAL			14,236	-11,911

	Change in foreign exchange rates		Effect on earnings	
	in %		in EUR k	
2017			Income (+)	Expense (-)
CNY	+10	-10	6,626	-4,233
GBP	+10	-10	1,484	-1,484
KRW	+10	-10	407	-407
PLN	+10	-10	312	-312
USD	+10	-10	5,229	-4,322
TOTAL			14,058	-10,758

(B) INTEREST RATE RISKS

By interest rate risks, the Group means the negative effects on the financial position and performance resulting from changes in interest rates. The external financing consists primarily of fixed-interest rate loans. This is one of the methods used to manage these risks. In addition, derivative financial instruments are used in risk management. Due to the structure of assets and liabilities, interest rate risks are mostly linked to liabilities to banks. Fixed-interest agreements amounting to EUR 104,961 k (prior year: EUR 90,853 k) have been entered into for these. Floating-interest liabilities to banks amount to EUR 125,905 k (prior year: EUR 19,034 k).

Of the liabilities to banks, an amount of EUR 154,656 k (prior year: EUR 25,064 k) is due for repricing within a year, while EUR 76,210 k (prior year: EUR 84,823 k) of these liabilities are due for repricing at a later date.

Under IFRS 7, interest rate risks are presented using sensitivity analyses. These present the effects of changes in market interest rates on interest payments, interest income and expenses, other comprehensive income, and, if applicable, on equity. The interest rate sensitivity analyses are based on the following assumptions:

- Market interest rate fluctuations of non-derivative financial instruments with fixed interest only affect profit or loss if they are measured at fair value. Therefore, the financial instruments with fixed interest that are measured at amortized cost do not constitute interest rate risks as defined by IFRS 7.
- Market interest rate fluctuations affect the interest result of non-derivative financial instruments with floating interest for which the interest payments are not designed as underlyings using cash flow hedges against interest rate risks, and are thus included when calculating the earnings-related sensitivities.
- Market interest rate fluctuations of interest derivatives (interest rate swaps, interest/ currency swaps) that are not part of a hedge relationship pursuant to IFRS 9 affect the other financial result (measurement result from adjusting the financial assets to the fair value) and are therefore taken into account when calculating the earnings-related sensitivities.
- Currency derivatives are not subject to any interest rate risks and therefore do not affect interest rate sensitivities.

in EUR k	2018		2017	
	+100 basis points	-100 basis points	+100 basis points	-100 basis points
Effects on earnings from financial liabilities and assets	-517	517	156	-156
TOTAL	-517	517	156	-156

(C) COMMODITY PRICE RISKS

The Group is exposed to risks from changes in commodity prices that stem from the procurement of the goods used in production. The Group generally does not use derivative financial instruments to hedge against this risk. Instead, the Group minimizes the risk in combination with quality and procurement assurance aspects using a procurement strategy adjusted to reflect current conditions and changes. This involves continuously assessing potential procurement sources according to regional, technological, qualitative, and price aspects, approving the sources and embedding these in development and production processes accordingly. Sudden price fluctuations due to the cost of materials or supply bottlenecks for certain product groups are countered using a planning basis that is constantly updated and also includes strategic buffer stocks.

(D) CREDIT RISKS

Credit risk describes the risk of financial loss resulting from counterparties failing to discharge their contractual payment obligations. Credit risk involves both the direct risk of default and the risk of a deterioration in creditworthiness, linked to the risk of a concentration of individual risks.

Credit risk is countered by only maintaining business relationships with first-class banks. Default risks from receivables are minimized by ongoing monitoring of the creditworthiness of the counterparty and by limiting the aggregated risks from the individual counterparty. The maximum risk of default on financial assets corresponds to their carrying amounts.

Business with major customers is subject to special credit monitoring. However, measured in terms of the overall risk potential from the default risk, the receivables from these customers are not significant enough to constitute an extraordinary concentration of risk.

The Group uses specific provision matrices for each region and entity to calculate the expected credit losses. The impairment factors specific to maturity are based on historical and prospective information, such as individual and macroeconomic data.

The following table provides information on the extent of the credit risks entailed in trade receivables for 2018:

in EUR k	2018		
	Gross value	Impairment	Weighting in %
As of the reporting date			
not past due	254,716	1,799	0.7
past due by			
less than 30 days	42,768	596	1.4
between 30 and 90 days	22,703	740	3.3
between 91 and 360 days	17,850	1,940	10.9
more than 360 days	4,803	3,411	71.0
TOTAL	342,840	8,486	

The following table provides information on the extent of the credit risk included in trade receivables (without specific bad debt allowances) for 2017:

in EUR k	2017
Neither impaired nor past due as of the end of the reporting period	214,364
Not impaired as of end of the reporting period but past due by the following time periods:	
less than 30 days	30,386
30 to 90 days	11,561
91 to 360 days	5,360
more than 360 days	2,825

Bad debt allowances on trade receivables developed as follows in the reporting year. As of January 1, 2018, there were no major changes from the transition from IAS 39 to IFRS 9.

in EUR k	2018
As of January 1	9,279
Currency translation differences	72
Derecognition	-460
Adjustment to loss allowance	-405
AS OF DECEMBER 31	8,486
in EUR k	2017
As of January 1	10,172
Currency translation differences	-594
Utilization/ reversals	-2,652
Additions	2,353
AS OF DECEMBER 31	9,279

(E) LIQUIDITY RISKS

Liquidity risk describes the risk that an entity will encounter difficulty in meeting obligations associated with financial liabilities. The Group generates liquidity primarily from operations and external financing. The funds are chiefly used to finance working capital and capital expenditures. The Group controls its liquidity by maintaining sufficient cash and cash equivalents, and lines of credit at banks in addition to cash inflows from operating activities. Cash and cash equivalents comprise cash and other assets.

At the end of 2018, short-term and long-term lines of credit and loans totaled EUR 324,728 k (prior year: EUR 233,576 k), of which EUR 230,866 k (prior year: EUR 109,887 k) was utilized.

Operational liquidity management comprises a cash concentration process whereby cash and cash equivalents are pooled on a daily basis. This allows liquidity surpluses and shortages to be controlled in line with the requirements of the Group as a whole as well as of individual group entities. The maturities of financial assets and financial liabilities as well as estimates of cash flows from operating activities are included in short-term and medium-term liquidity management. Detailed information is included in the comments on section F. (27) "Non-current and current financial liabilities."

The following repayment schedule shows how the payments made for financial liabilities as of December 31, 2018 influence the Group's liquidity situation.

The schedule describes the procedure for undiscounted

- principal and interest payments for financial liabilities
- net payments for derivative financial instruments as a total for the respective year
- payments for trade payables and
- payments for other financial liabilities

The undiscounted payments are subject to the following conditions:

- If the contractual party can demand a payment at different times, the liability is reported at the earliest possible repayment date.
- Derivative financial instruments include derivatives with negative fair values.
- The interest payments for floating-rate financial instruments are calculated on the basis of forward interest rates. This procedure corresponds to calculating the fair value of other financial instruments.

The financial liabilities of the Group have the following terms. The disclosures are based on contractual payments without discounting.

in EUR k	Total	2019	2020	2021	2022	2023	≥ 2024
Liabilities to banks	234,888	156,631	29,843	28,032	6,857	6,564	6,961
Finance lease liabilities	330	197	64	35	18	16	0
Derivative financial instruments	1,416	1,416	0	0	0	0	0
Trade payables	93,340	93,340	0	0	0	0	0
Other financial liabilities	5,345	5,345	0	0	0	0	0
TOTAL	335,319	256,929	29,907	28,067	6,875	6,580	6,961

The cash flows from the derivative financial instruments are shown as net figures.

These include foreign exchange contracts with negative market values which break down into a cash outflow of EUR 16,178 k (prior year: EUR 23,470 k) and a cash inflow of EUR 14,762 k (prior year: EUR 22,579 k).

There are also derivative financial instruments with a positive market value that break down into a cash outflow of EUR 168,511 k (prior year: EUR 173,723 k) and a cash inflow of EUR 169,213 k (prior year: EUR 175,335 k).

As of December 31, 2017, the financial liabilities of the Group had the following terms. The disclosures were based on contractual payments without discounting.

in EUR k	Total	2018	2019	2020	2021	2022	≥ 2023
Liabilities to banks	114,861	26,662	27,530	26,395	24,611	3,776	5,887
Finance lease liabilities	1,932	1,780	26	47	43	36	0
Derivative financial instruments	891	891	0	0	0	0	0
Trade payables	127,132	127,132	0	0	0	0	0
Other financial liabilities	3,898	3,898	0	0	0	0	0
TOTAL	248,714	160,363	27,556	26,442	24,654	3,812	5,887

The retained liquidity as well as short-term and long-term lines of credit give the Group adequate flexibility to cover the Group's refinancing needs. The Group is not subject to any concentration of liquidity risk on account of the diverse nature of its financing sources and its cash and cash equivalents.

(F) CAPITAL MANAGEMENT

The Group's primary capital management objective is to ensure that it maintains a healthy equity ratio with a low-risk and flexible financing structure in order to support its business activity.

The Group manages the way its capital base is structured in light of changes in economic conditions and adjusts it accordingly. To adjust the way the capital base is structured, the dividend payment to shareholders may be adjusted, capital may be returned to shareholders, or new shares may be issued.

The Group monitors its capital taking into account the underlying parameters, e.g., consolidated net income, mainly using the equity ratio. The equity ratio is the ratio of equity in the statement of financial position to total assets. As of December 31, 2018, the equity ratio amounted to 50.2 percent (prior year: 54.8 percent).

(37) Financial instruments**(A) FAIR VALUE OF FINANCIAL INSTRUMENTS**

Financial assets and financial liabilities regularly measured at fair value:

in EUR k	Level 1		Level 2		Level 3		Total	
	2018	2017	2018	2017	2018	2017	2018	2017
Assets								
Other financial assets	0	0	702	1,612	0	0	702	1,612
thereof derivatives not used for hedging	0	0	702	1,612	0	0	702	1,612
Equity and liabilities								
Other financial liabilities	0	0	1,416	891	0	0	1,416	891
thereof derivatives not used for hedging	0	0	1,416	891	0	0	1,416	891

The fair value of forward exchange contracts is measured using the closing rates on the forward exchange markets. The fair values are calculated on the basis of the mean exchange rate. The calculation methods and the variables used are in line with the provisions of IFRS 13.

The fair value of options is determined using the Black-Scholes model modified by Garman and Kohlhagen. An option is measured primarily by reference to exchange rates, the respective interest rates of the currency pair, and volatility as of the reporting date as well as its remaining term.

During the reporting periods ending December 31, 2018 and December 31, 2017, there were no transfers between Level 1 and Level 2 fair value measurements and no transfers into and out of Level 3 fair value measurements.

Financial assets and financial liabilities not regularly measured at fair value:

	Level 1		Level 2		Level 3		Total	
in EUR k	2018	2017	2018	2017	2018	2017	2018	2017
Assets								
Other financial assets	0	0	1,645	535	0	0	1,645	535
Equity and liabilities								
Liabilities to banks	0	0	231,955	111,546	0	0	231,955	111,546
Finance lease liabilities	0	0	314	1,928	0	0	314	1,928

The fair value of securities and other financial assets is determined based on the market price as of the end of the reporting period, if available.

The carrying amounts of trade receivables and payables, other assets, cash and cash equivalents, and other liabilities closely correspond to the fair values due to the short-term maturities.

For liabilities to banks and from finance leases, the present value of the future cash flows was calculated on the basis of matched market interest rates.

For the presentation of the carrying amounts and fair values by class and category, reference is made to attachment A3 and attachment A4 of these notes to the consolidated financial statements.

Measurement of the financial instruments held as of December 31, 2018 at fair value gave rise to the following total gains and losses.

	Assets		Liabilities	
in EUR k	2018	2017	2018	2017
Recognized in the income statement:				
Derivatives not used for hedging	-354	53	-1,416	-891

Income and expenses from measuring held-for-trading financial assets and liabilities at fair value are presented in the currency results or the interest expense and income.

(B) NET RESULTS BY MEASUREMENT CATEGORY

The following table presents the net gains and net losses from financial instruments taken into account in the income statement pursuant to IFRS 9 in 2018:

in EUR k	2018
Financial assets at fair value through profit or loss	-293
Financial liabilities at fair value through profit or loss	-639
Financial assets at acquisition cost	1,623
Financial liabilities at acquisition cost	-4,607
TOTAL	-3,916

The net gains and losses from financial assets and financial liabilities at fair value through profit or loss include the results of changes in fair value and from interest income and expenses from these financial instruments.

The net gains and losses from financial assets and financial liabilities at amortized cost chiefly include the effects of interest, currencies, and impairments.

The following table presents the net gains and net losses from financial instruments taken into account in the income statement pursuant to IAS 39 in the prior year:

CATEGORIES PURSUANT TO IAS 39

in EUR k	2017
Loans and receivables	-949
Financial assets and financial liabilities at fair value through profit or loss (held for trading)	938
Financial liabilities at acquisition cost	-577
TOTAL	-588

The net gains and losses from loans and receivables chiefly include the effects of interest, currencies, and impairments.

The net gains and losses from financial assets and financial liabilities at fair value through profit or loss include the results of changes in fair value and from interest income and expenses from these financial instruments.

The net gains and losses from financial liabilities at amortized cost relate first and foremost to results from interest expenses.

(C) TOTAL INTEREST INCOME AND EXPENSES

The total interest income and expenses for financial assets and financial liabilities not measured at fair value through profit or loss are as follows:

in EUR k	2018	2017
Total interest income	267	233
Total interest expenses	-3,913	-2,283
TOTAL	-3,646	-2,050

(D) DERIVATIVE FINANCIAL INSTRUMENTS

As of the end of the reporting period, the fair values of the derivative financial instruments are as follows:

in EUR k	Contract value or nominal value		Positive fair value		Negative fair value	
	2018	2017	2018	2017	2018	2017
Currency instruments without hedging relationship						
Forward exchange contracts	142,993	140,592	350	639	1,416	891
Currency options (OTC) ¹	40,280	55,711	352	973	0	0
TOTAL CURRENCY INSTRUMENTS	183,273	196,303	702	1,612	1,416	891

¹ OTC: over the counter

The foreign currency instruments are principally used to hedge exchange rate risks in AUD, CNY, GBP, KRW, PLN, and USD. The total hedges of EUR 183,273 k (prior year: EUR 196,303 k) have maturities of less than twelve months.

(38) Government grants

The Group reported government grants for R&D projects of EUR 2,226 k (prior year: EUR 2,077 k); these are not dependent on the success of the projects. These were recognized as income in full in 2018 in accordance with the percentage of completion of the projects.

(39) Related party disclosures

Related parties are members of the Executive Board, members of the Supervisory Board of the Group, members of the Sick family, Sick Glaser GmbH, Freiburg, Germany, joint ventures, associates, and Sick Holding GmbH, Freiburg, Germany. Sick Holding GmbH, Freiburg, is the ultimate parent company of SICK AG. Its consolidated financial statements are published in the Bundesanzeiger (German Federal Gazette).

All transactions with joint ventures and associates are made at normal market prices.

The table below provides the total amount of transactions with related parties for the fiscal year, which relate mostly to joint ventures:

in EUR k	2018	2017
Goods and services sold	1,955	1,444
Goods and services purchased	1,929	1,248
Receivables as of the end of the reporting period	793	858
Liabilities as of the end of the reporting period	163	123

The Group's goods and services sold mainly relate to deliveries of goods. The Group primarily received deliveries of the goods and services as part of goods and services purchased. No bad debt allowances were recognized on trade receivables.

As in the prior year, there were no transactions between the Group and Sick Holding GmbH, Freiburg, during the fiscal year other than dividends paid.

In the Group as of December 31, 2018, as in the prior year, there are no receivables and liabilities due from or to members of the Executive Board, apart from outstanding remuneration.

The members of the Executive Board of SICK AG are classified as key management personnel.

Remuneration of EUR 4,117 k (prior year: EUR 4,684 k) granted to these individuals includes short-term employee benefits of EUR 3,646 k (prior year: EUR 3,652 k) expensed in the reporting period, post-employment benefits of EUR 479 k (prior year: EUR 435 k) as well as other long-term benefits of EUR 117 k (prior year: EUR 598 k), of which EUR 59 k (prior year: EUR 299 k) can relate to share-based payments.

A long-term incentive arrangement ("LTI") was concluded with the members of the Executive Board of SICK AG in the fiscal years 2016, 2017, and 2018. One of the prerequisites for receiving the LTI is to belong to the Executive Board of SICK AG for a period of three years.

The assessment base for the LTI is a positive value added accumulated over three fiscal years (either 2016 to 2018, 2017 to 2019, or 2018 to 2020, depending on the contract, referred to as the "time frame"). The LTI is measured as a percentage of the average value added calculated in this period. It is limited to a certain percentage of the fixed remuneration. At the end of the period, the LTI is paid out in shares in SICK AG (max. 50 percent) and in cash (min. 50 percent). In the fiscal year 2018, 6,200 shares were paid out at a price of EUR 50.74 at the end of the 2015 to 2017 time frame under the LTI. The obligations from the cash settlement amount to EUR 59 k as of December 31, 2018. The percentage of shares is determined by the company, taking treasury shares into account. The rate authoritative for translating the percentage to be paid out in shares is the current rate specified by the tax authorities or the respective market price on the date of maturity. If a member of the Executive Board leaves during this three-year period, any entitlement to an LTI for this period is forfeited.

The SICK shares transferred as part of the LTI must be kept in a custodian account with a blocking notice stating that the shares can only be issued subject to the approval of the company. These shares can only be accessed if the member steps down from the Executive Board or retires.

Measurement of the LTI as of December 31, 2018 was based on the consolidated financial statements as of December 31, 2016 to 2018 as well as the planning for the Group for future fiscal years, taking the contractually stipulated limit into account. Based on the share price of EUR 50.74 calculated by the tax authorities in May of the fiscal year 2018, the 50 per-cent share of the LTI that can be paid in shares corresponds to EUR 59 k or 1,163 shares.

Compensation to former members of management and their surviving dependents totaled EUR 1,193 k in the fiscal year (prior year: EUR 1,153 k). Provisions totaling EUR 12,366 k (prior year: EUR 12,623 k) were recognized for pension obligations for this group of persons.

Compensation of the Supervisory Board of SICK AG came to EUR 738 k (prior year: EUR 739 k) for supervisory board activities and to EUR 393 k (prior year: EUR 370 k) for activities for SICK AG. Additional compensation for advisory services was not paid.

As of December 31, 2018, as in the prior year, the Sick family has no receivables or liabilities due from or to the Group.

(40) Stock option plans

From 1999 to 2003, SICK AG had annual employee stock option plans. Around 1.3 million shares (prior year: around 1.3 million) were issued as part of employee stock option plans, of which SICK AG has since repurchased 0.3 million shares (prior year: 0.3 million) at market price.

(41) Fees and services provided by the auditors

The following table shows, on aggregate, the fees incurred for the services provided by the auditor Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft, Stuttgart, Germany, in the fiscal year 2018:

in EUR k	2018	2017
Audits of the financial statements	351	325
Other services	130	101
TOTAL	481	426

(42) Financial reporting standards not early adopted

The IASB and IFRIC have issued additional standards and interpretations. These regulations have not been adopted for this reporting year because they have either not yet been recognized by the EU or their adoption is not yet mandatory.

Generally speaking, the Group intends to adopt all standards when their adoption becomes mandatory for the first time.

Standards/interpretations	Title	Applicable from	Expected impact on SICK
IFRS 16	Leases	January 1, 2019	Significant in principle
IFRIC 23	Uncertainty Over Income Tax Treatments	January 1, 2019	Significant in principle
Amendments to IAS 19	Plan Amendment, Curtailment or Settlement	January 1, 2019	Significant in principle
Amendments to IFRS 9	Prepayment Features with Negative Compensation	January 1, 2019	Immaterial
Amendments to IAS 28	Long-term Investments in Associates and Joint Ventures	January 1, 2019	Immaterial
Improvements to IFRSs (2015 – 2017)	Amendments to various standards (IFRS 3, IFRS 11, IAS 12, and IAS 23)	January 1, 2019	Immaterial
Amendments to references to the Conceptual Framework for Financial Reporting	Conceptual Framework for Financial Reporting	January 1, 2020	Immaterial
Amendments to IAS 1 and IAS 8	Definition of Material	January 1, 2020	Significant in principle
Amendments to IFRS 3	Business Combinations: Definition of a Business	January 1, 2020	Immaterial
IFRS 17	Insurance Contracts	January 1, 2021	Immaterial

In January 2016, the IASB published IFRS 16 “Leases,” which replaced the previous IAS 17 “Leases” as well as any related interpretations.

IFRS 16 abolishes the previous classification of lease contracts by the lessee in operating and finance leases. Instead, IFRS 16 introduces a uniform accounting model for lessees, according to which the lessee is required to record a liability at the inception of the lease in the amount of the present value of the lease payments to be made (the lease liability) as well as an asset for the right granted to use the leased asset during the lease term (the right of use).

Operating leases that had previously been expensed will need to be recognized in the statement of financial position in the future. This is largely comparable with the current accounting treatment of finance leases. However, the new standard contains two exceptions from lessees’ duty to recognize leases. These relate to leases on low-value assets and short-term leases with a term of up to 12 months, which can continue to be recognized as an expense.

IFRS 16 is effective for fiscal years beginning on or after January 1, 2019. The Group will apply the standard for the fiscal year commencing on January 1, 2019 using the modified retrospective approach, i.e., the prior-year figures will not be adjusted. The Group will apply this standard to contracts that had previously been classified as leases pursuant to IAS 17 and IFRIC 4. Contracts that had previously not been classified as leases pursuant to IAS 17 and IFRIC 4 are also unaffected by the new standard. In addition, the Group plans to make use of many of the practical expedients offered by IFRS 16 when transitioning from IAS 17 to IFRS 16.

The transition effect mainly affects the leased real estate and vehicles, which are not covered by the exceptions for low-value assets and short-term leases. Here, it is expected that the rights of use recognized for leases will cause a low double-digit percentage increase in property, plant and equipment. At the same time, percentage growth of financial liabilities will be in the mid-double digits on account of the corresponding lease liabilities. Total assets is therefore expected to see a high single-digit percentage increase upon transition. The effects on equity are predicted to be in the low single-digit percentage range. As a result of these two factors, the equity ratio will be down by a low single-digit percentage and liabilities will be up by a mid-double-digit percentage.

The application of IFRS 16 replaces the straight-line method of recognizing expenses for operating leases with depreciation expenses for rights of use and interest expenses that stem from lease liabilities. As a result, EBIT will probably improve by a marginal single-digit percentage amount, whereas the percentage increase for interest expenses will be in the mid-double digits. In the statement of cash flows, the changed presentation of lease expenses will worsen the cash flow from financing activities and improve the cash flow from operating activities.

In May 2017, the IASB issued IFRIC 23 “Uncertainty over Income Tax Treatments.” This interpretation clarifies the requirements for recognizing and measuring uncertain income tax items. As part of estimating the uncertainty, the entity is required to assess the likelihood of the tax jurisdiction accepting the income tax treatment. The new regulation is mandatory for fiscal years beginning on or after January 1, 2019. The Group does not currently expect any material impact on its future financial position and performance.

The amendments to IAS 19 affect the accounting treatment of plan amendments, curtailments, or settlements made during a reporting period. These amendments stipulate that the current service cost and the net interest for the remaining period has to be recalculated after an amendment, curtailment, or settlement to a pension plan during the year. The actuarial assumptions applicable at the time the plan is changed are used as the basis for this recalculation. The amendments to IAS 19 relate to plan amendments, curtailments, or settlements made at or after the start of a fiscal year beginning on or after January 1, 2019. Early adoption is permitted. They only apply to plan amendments, curtailments, or settlements made in the future by the Group. The Group does not currently expect any material impact on its future financial position and performance.

In October 2018, the IASB issued the amended standard “Definition of Material (Amendments to IAS 1 and IAS 8),” in order to refine the IFRS definition of materiality and to standardize the various definitions in the Conceptual Framework and the standards themselves. According to this, information is material if omitting, misstating, or obscuring it could reasonably be expected to influence the decisions taken by the primary users of general purpose financial statements. The amendment is mandatory for fiscal years beginning on or after January 1, 2020. The Group is planning to perform an analysis of the potential impact on its future financial position and performance.

(43) Subsequent events

At the beginning of 2019, SICK acquired the remaining 50 percent of the shares in SICK SpA, Santiago de Chile, Chile, making SICK the sole owner of SICK SpA and strengthening its position on the South American market.

Because the purchase price allocation had not been completed as of the reporting date, it was not possible to make statements concerning the amount of goodwill.

In February 2019, SICK acquired the remaining 15 percent of the shares in SICK Co., Ltd., Seoul, Korea.

(44) Executive Board and Supervisory Board disclosures

EXECUTIVE BOARD

Dr. Robert Bauer, Emmendingen (Chairman)
Products & Technology

Reinhard Bösl, Freiburg
Systems & Industries

Dr. Mats Gökstorp, Freiburg
Sales & Service

Dr. Martin Krämer, Waldkirch
Human Resources, Procurement, Legal & Compliance

Markus Vatter, Vörsstetten
Finance, Controlling & IT

SUPERVISORY BOARD

In accordance with Sec. 95 AktG in conjunction with Art. 8 paragraph 1 of the articles of incorporation and bylaws, the Supervisory Board has 12 members. Six members are elected by the Annual General Shareholders' Meeting and six by the employees in accordance with the provisions of the 1976 MitbestG ("Mitbestimmungsgesetz": German Co-determination Act). The members of the Supervisory Board are:

Gisela Sick, Waldkirch
Honorary Chairwoman
Retired

SHAREHOLDER REPRESENTATIVES:

Klaus M. Bukenberger, Schenkenzell (Chairman)
Corporate Governance Consulting, Stuttgart

Franz Bausch, Hinterzarten
Managing Director of Sick Holding GmbH, Freiburg (until December 31, 2018)
Tax consultant, chartered accountant

Prof. Dr. Mark K. Binz, Stuttgart
Lawyer

Sebastian Glaser, Munich
Managing Partner of Sick Holding GmbH, Freiburg

Renate Sick-Glaser, Freiburg
Chairwoman of the Advisory Board of Sick Holding GmbH, Freiburg, since January 1, 2019
Managing Partner of Sick Holding GmbH, Freiburg (until December 31, 2018)
Managing Partner of Sick Glaser GmbH, Freiburg

Dr. Dipl.-Ing. Eberhard Veit, Göppingen
Managing Partner of 4.0-Veit GbR, Göppingen

EMPLOYEE REPRESENTATIVES:

Karl-Heinz Barth, Donaueschingen
Chairman of the Works Council of SICK STEGMANN GmbH, Donaueschingen
Deputy Chairman of the Group Works Council
Member of the Supervisory Board since May 16, 2018

Dr. Bernd Cordes, Emmendingen
Head of the Global Business Center 07 of SICK AG, Waldkirch

Engelbert Herbstritt, Waldkirch
Chairman of the Group Works Council (until May 15, 2018)
Member of the Supervisory Board until May 16, 2018

Roberto Hernandez, Waldkirch (Deputy Chairman)
Chairman of the Works Council of SICK AG, Waldkirch (until April 8, 2018)
Chairman of the Central Works Council of SICK AG, Waldkirch (until May 13, 2018)
Member of the Supervisory Board until May 16, 2018

Dr. Matthias Müller, Braunschweig
Head of Finance in the Federal Presidium of the DGB
("Deutscher Gewerkschaftsbund": Confederation of German Trade Unions), Berlin

Hermann Spieß, Breisach
Trade union secretary of IG Metall

Susanne Tröndle, Waldkirch (Deputy Chairwoman)
Chairwoman of the Works Council and the Central Works Council of SICK AG, Waldkirch (since May 14, 2018)
Chairwoman of the Group Works Council (since May 15, 2018)
Member of the Supervisory Board since May 16, 2018

Thomas Weckopp, Korschenbroich
Chairman of the Works Council of SICK Vertriebs-GmbH, Düsseldorf

(45) Approval of the consolidated financial statements

The consolidated financial statements were approved by the Executive Board on March 4, 2019. The financial statements were then submitted to the Supervisory Board for review.

Waldkirch, March 19, 2019

SICK AG

The Executive Board



Dr. Robert Bauer
(Chairman)



Reinhard Bösl



Dr. Mats Gökstorp



Dr. Martin Krämer



Markus Vatter

CONSOLIDATED STATEMENT OF CHANGES IN NON-CURRENT ASSETS

Attachment A1

Non-current assets		Acquisition or production costs					
in EUR k		Balance as of Jan. 1, 2018	Currency translation differences	Additions	Disposals	Reclassi- fications	Balance as of Dec. 31, 2018
I.	Intangible assets						
1.	Purchased industrial property rights and similar rights and assets as well as licenses to such rights and assets	86,145	-53	5,517	1,271	389	90,727
2.	Goodwill	25,950	-420	0	0	0	25,530
3.	Capitalized development costs and other internally generated intangible assets	96,033	0	10,628	1,332	0	105,329
4.	Payments on account	721	0	1,649	0	-389	1,981
		208,849	-473	17,794	2,603	0	223,567
II.	Property, plant and equipment						
1.	Land and buildings including buildings on third-party land	209,624	119	14,827	183	11,912	236,299
2.	Technical equipment and machinery	192,232	-468	21,450	5,408	17,570	225,376
3.	Other equipment, furniture and fixtures	153,658	459	23,107	5,735	4,502	175,991
4.	Payments on account and assets under construction	41,506	-49	29,986	0	-33,984	37,459
		597,020	61	89,370	11,326	0	675,125
TOTAL		805,869	-412	107,164	13,929	0	898,692

	Accumulated depreciation/ amortization					Net carrying amounts		
	Balance as of Jan. 1, 2018	Currency translation differences	Additions	Disposals	Reclassi- fications	Balance as of Dec. 31, 2018	Balance as of Dec. 31, 2018	Balance as of Dec. 31, 2017
	69,710	-125	9,089	1,271	0	77,403	13,324	16,435
	1,024	0	0	0	0	1,024	24,506	24,926
	70,244	0	8,285	1,332	0	77,197	28,132	25,789
	0	0	0	0	0	0	1,981	721
	140,978	-125	17,374	2,603	0	155,624	67,943	67,871
	65,909	86	6,289	180	151	72,255	164,044	143,715
	118,325	-214	21,523	5,402	-148	134,084	91,292	73,907
	103,413	487	17,392	5,585	-3	115,704	60,287	50,245
	0	0	0	0	0	0	37,459	41,506
	287,647	359	45,204	11,167	0	322,043	353,082	309,373
	428,625	234	62,578	13,770	0	477,667	421,025	377,244

CONSOLIDATED STATEMENT OF CHANGES IN NON-CURRENT ASSETS

Attachment A2

Non-current assets		Acquisition or production costs					
in EUR k		Balance as of Jan. 1, 2017	Currency translation differences	Additions	Disposals	Reclassi- fications	Balance as of Dec. 31, 2017
I.	Intangible assets						
1.	Purchased industrial property rights and similar rights and assets as well as licenses to such rights and assets	82,333	-616	5,487	1,491	432	86,145
2.	Goodwill	25,385	-571	1,136	0	0	25,950
3.	Capitalized development costs and other internally generated intangible assets	88,899	-14	9,453	2,305	0	96,033
4.	Payments on account	794	-25	384	0	-432	721
		197,411	-1,226	16,460	3,796	0	208,849
II.	Property, plant and equipment						
1.	Land and buildings including buildings on third-party land	195,764	-1,325	6,687	261	8,759	209,624
2.	Technical equipment and machinery	166,102	-839	18,917	3,526	11,578	192,232
3.	Other equipment, furniture and fixtures	146,117	-4,156	18,832	8,220	1,085	153,658
4.	Payments on account and assets under construction	28,577	-43	34,394	0	-21,422	41,506
		536,560	-6,363	78,830	12,007	0	597,020
TOTAL		733,971	-7,589	95,290	15,803	0	805,869

Additions include the acquisition of ATech GmbH in Witten (industrial property rights and similar rights: EUR 602 k and property, plant and equipment: EUR 371 k).

	Accumulated depreciation/ amortization					Net carrying amounts		
	Balance as of Jan. 1, 2017	Currency translation differences	Additions	Disposals	Reclassi- fications	Balance as of Dec. 31, 2017	Balance as of Dec. 31, 2017	Balance as of Dec. 31, 2016
	64,113	-610	7,688	1,481	0	69,710	16,435	18,220
	1,024	0	0	0	0	1,024	24,926	24,361
	63,868	-14	8,695	2,305	0	70,244	25,789	25,031
	0	0	0	0	0	0	721	794
	129,005	-624	16,383	3,786	0	140,978	67,871	68,406
	60,422	-688	6,348	223	50	65,909	143,715	135,342
	104,297	-591	18,258	3,526	-113	118,325	73,907	61,805
	99,768	-3,335	14,682	7,765	63	103,413	50,245	46,349
	0	0	0	0	0	0	41,506	28,577
	264,487	-4,614	39,288	11,514	0	287,647	309,373	272,073
	393,492	-5,238	55,671	15,300	0	428,625	377,244	340,479

CARRYING AMOUNTS AND FAIR VALUES

Attachment A3

by measurement category in EUR k

	Measure- ment category pursuant to IAS 39	Carrying amount pursuant to IAS 39				Carrying amount pursuant to IAS 17	Other carrying amounts	Fair value 2018
		Carrying amount 2018	(Amortized) cost	at fair value not through profit or loss	at fair value through profit or loss			
Assets								
Other financial assets								
Other equity investments	FVOCI/ n.a.	1,643		5			1,638	1,643
Other financial assets	FVOCI	2		2				2
Trade receivables	AC	334,354	334,354					334,354
Other assets								
Derivatives held for trading	FVTPL	702			702			702
Other	FVOCI/ AC/ n.a.	33,870	11,102	272			22,496	33,870
Cash and cash equivalents	AC	21,152	21,152					21,152
Equity and liabilities								
Financial liabilities								
Liabilities to banks	AC	230,866	230,866					231,955
Finance lease liabilities	n.a.	314				314		314
Trade payables	AC	93,340	93,340					93,340
Other liabilities								
Derivatives held for trading	FVTPL	1,416			1,416			1,416
Other	AC	5,345	5,345					5,345
Of which aggregated by measurement category pursuant to IAS 39:								
Financial assets at amortized cost (AC)		366,608	366,608					
Financial assets at fair value through profit or loss (FVTPL)		702			702			
Financial assets at fair value through other comprehensive income (FVOCI)		279		279				
Financial liabilities at amortized cost (AC)		329,551	329,551					
Financial liabilities at fair value through profit or loss (FVTPL)		1,416			1,416			

CARRYING AMOUNTS AND FAIR VALUES

Attachment A4

by measurement category in EUR k

	Measure- ment category pursuant to IAS 39	Carrying amount pursuant to IAS 39				Carrying amount pur- suant to IAS 17	Other carrying amounts	Fair value 2017
		Carrying amount 2017	(Amortized) cost	at fair value not through profit or loss	at fair value through profit or loss			
Assets								
Other financial assets								
Other equity investments	FAAFS	523	523					523
Other financial assets	FAAFS	12	12					12
Trade receivables	LAR	288,299	288,299					288,299
Other assets								
Derivatives held for trading	FAHFT	1,612			1,612			1,612
Other	FAAFS/ LAR/ n. a.	28,344	8,566				19,778	28,344
Cash and cash equivalents	LAR	20,459	20,459					20,459
Equity and liabilities								
Financial liabilities								
Liabilities to banks	FLAC	109,887	109,887					111,546
Finance lease liabilities	n. a.	1,928				1,928		1,928
Trade payables	FLAC	127,132	127,132					127,132
Other liabilities								
Derivatives held for trading	FLHFT	891			891			891
Other	FLAC	3,898	3,898					3,898
Of which aggregated by measurement category pursuant to IAS 39:								
Financial assets held for trading (FAHFT)		1,612			1,612			
Loans and receivables (LAR)		317,051	317,051					
Financial assets available for sale (FAAFS)		808	808					
Financial liabilities held for trading (FLHFT)		891			891			
Financial liabilities at amortized cost (FLAC)		240,917	240,917					

CARRYING AMOUNTS AND FAIR VALUES

Attachment A5

by measurement category in EUR k

	Measurement category pursuant to IAS 39	Carrying amount Dec. 31, 2017 (IAS 39)	Reconciliation	Carrying amount Jan. 1, 2018 (IFRS 9)	Measurement category pursuant to IFRS 9
Assets					
Other financial assets					
Other equity investments ¹	FAAFS	523	412	111	FVOCI
Other financial assets	FAAFS	12	-	12	FVOCI
Trade receivables	LAR	288,299	-	288,299	AC
Other assets					
Derivatives held for trading	FAHFT	1,612		1,612	FVTPL
Other	FAAFS	273		273	FVOCI
Other	LAR	8,293		8,293	AC
Cash and cash equivalents	LAR	20,459		20,459	AC
Equity and liabilities					
Financial liabilities					
Liabilities to banks	FLAC	109,887		109,887	AC
Finance lease liabilities	n. a.	1,928		1,928	n. a.
Trade payables	FLAC	127,132		127,132	AC
Other liabilities					
Derivatives held for trading	FLHFT	891		891	FVTPL
Other	FLAC	3,898		3,898	AC

¹ Reconciliation relates to shares in non-consolidated subsidiaries that do not fall within the scope of IFRS 9.

KEY PURSUANT TO IAS 39:

- Financial assets held for trading (FAHFT)
- Loans and receivables (LAR)
- Financial assets available for sale (FAAFS)
- Financial liabilities held for trading (FLHFT)
- Financial liabilities at amortized cost (FLAC)

KEY PURSUANT TO IFRS 9:

- Financial assets at amortized cost (AC)
- Financial assets at fair value through profit or loss (FVTPL)
- Financial assets at fair value through other comprehensive income (FVOCI)
- Financial liabilities at amortized cost (AC)
- Financial liabilities at fair value through profit or loss (FVTPL)

LIST OF MAIN SHAREHOLDINGS
as of December 31, 2018

Attachment A6

Name and registered offices of the entity		Investment in %	Indirect investment via no.	Consolidation
Parent company				
SICK AG, Waldkirch / Germany				
I. Shares in affiliates				
1.	SICK S.à.r.l., Émerainville / France	100.00		
2.	SICK (UK) Ltd., St. Albans / United Kingdom	100.00		
3.	SICK, Inc., Minneapolis, Minnesota / USA	100.00		
4.	SICK B.V., De Bilt / Netherlands	100.00		
5.	SICK AG, Stans / Switzerland	100.00		
6.	SICK Pty Ltd, Heidelberg West, VIC / Australia	100.00		
7.	SICK A/S, Birkerød / Denmark	100.00		
8.	SICK NV / SA, Zellik-Asse / Belgium	100.00		
9.	SICK K.K., Tokyo / Japan	100.00		
10.	SICK Optic-Electronic S.A., Sant Just Desvern / Spain	100.00		
11.	SICK Engineering GmbH, Ottendorf-Okrilla / Germany ¹	100.00		
12.	SICK Oy, Vantaa / Finland	100.00		
13.	SICK Pte. Ltd., Singapore / Singapore	100.00		
14.	SICK AS, Rud / Norway	100.00		
15.	SICK AB, Vårby / Sweden	100.00		
16.	SICK Sp. z o.o., Warsaw / Poland	100.00		
17.	SICK Solução em Sensores Ltda., São Paulo / Brazil	100.00		
18.	Sick Optic-Electronic Co., Ltd., Hong Kong / China	100.00		
19.	SICK S.p.A., Vimodrone (MI) / Italy ²	100.00		
20.	SICK Kft., Kunsziget / Hungary	100.00		
21.	SICK GmbH, Vienna Neudorf / Austria	100.00		
22.	SICK spol. s r.o., Prague / Czech Republic	100.00		
23.	SICK Management GmbH, Waldkirch / Germany ¹	100.00		
24.	SICK Co., Ltd., Seoul / Korea	85.00		
25.	SICK Automatisierung International GmbH, Waldkirch / Germany	100.00		
26.	SICK China Co., Ltd., Guangzhou / China	100.00	18	
27.	SICK STEGMANN GmbH, Donaueschingen / Germany ^{1,3}	100.00	23	
28.	SICK MAIHAK (Beijing) Co., Ltd., Beijing / China	100.00		
29.	SICK IVP AB, Linköping / Sweden	100.00		
30.	Sensörler ve İleri Cihazlar Kontrol A.Ş., Istanbul / Turkey	100.00		

Name and registered offices of the entity		Investment in %	Indirect investment via no.	Consolidation
31.	SICK LLC, Moscow / Russia ⁴	100.00	25	
32.	SICK Vertriebs-GmbH, Düsseldorf / Germany ¹	100.00		
33.	SICK d.o.o., Ljubljana / Slovenia	100.00	21	N
34.	SICK INDIA Pvt. Ltd., Mumbai / India	100.00	25	
35.	SICK Sensors Ltd., Tzur Yigal / Israel	100.00		
36.	SICK S.R.L., Dumbravita / Romania ⁵	100.00	25	N
37.	SICK TAIWAN Co., Ltd., Taipei / Taiwan	100.00		
38.	SICK Automation Solutions S.A. de C.V., Guanajuato / Mexico	100.00	25	
39.	SICK Ltd., Moncton, New Brunswick / Canada	100.00	3	
40.	SICK Automation Southern Africa (Pty) Ltd., Northcliff / South Africa	100.00	25	
41.	SICK Sdn. Bhd., Johor Bahru / Malaysia	100.00	43	
42.	SICK System Engineering AG, Buochs / Switzerland	100.00		
43.	SICK Product Center Asia Pte. Ltd., Singapore / Singapore	100.00		
44.	SICK FZE, Dubai / United Arab Emirates	100.00	25	
45.	SICK Sensor (Malaysia) Sdn. Bhd., Petaling Jaya / Malaysia	100.00	25	N
46.	SICK (THAILAND) Co., Ltd., Bangkok / Thailand	100.00	25	N
47.	SICK NZ Ltd., Auckland / New Zealand	100.00	25	
48.	SICK Ertekesito Szolgaltato Kft., Budapest / Hungary	100.00	25	N
49.	SICK Metering Systems N.V., Stabroek / Belgium	100.00	11	
50.	Vision Solution Engineering s.r.o., Prague / Czech Republic	100.00	25	
51.	SICK Product & Competence Center Americas LLC, Minneapolis, Minnesota / USA	100.00	3	
52.	SICK ATech GmbH, Witten / Germany	100.00		
53.	SICK Hellas Ltd., Halandri / Greece ⁶	100.00	25	N
54.	Zhejiang SICK Sensor Co. Ltd., Jiaxing, Zhejiang Province / China	100.00		N
II. Equity investments and other interests				
55.	SICK OPTEX Co., Ltd., Kyoto / Japan	50.00		A
56.	WABE gGmbH, Waldkirch / Germany	16.67		N
57.	SICK SpA, Santiago de Chile / Chile	50.00	25	A
58.	Mobilisis d.o.o., Varaždin / Croatia	24.99		A

¹ The entities have exercised the exemption provision pursuant to Sec. 264 (3) HGB.

² 10 percent of the shares are held by SICK Engineering GmbH, Ottendorf-Okrilla / Germany (No. 11).

³ 6 percent of the shares are held by SICK AG, Waldkirch / Germany.

⁴ 15 percent of the shares are held by SICK AG, Waldkirch / Germany.

⁵ 0.5 percent of the shares are held by SICK AG, Waldkirch / Germany.

⁶ 1 percent of the shares are held by SICK Management GmbH, Waldkirch / Germany (No. 23).

^N The entities marked N are not included in the consolidated financial statements on grounds of immateriality.

^A The entities marked A are included in the consolidated financial statements at equity.

INDEPENDENT AUDITOR'S REPORT¹

to SICK AG



Opinions

We have audited the consolidated financial statements of SICK AG, Waldkirch, and its subsidiaries (the Group), which comprise the consolidated income statement, consolidated statement of comprehensive income, consolidated statement of financial position, consolidated statement of cash flows, consolidated statement of changes in equity, and notes to the consolidated financial statements for the fiscal year from January 1 to December 31, 2018, including a summary of significant accounting policies. In addition, we have audited the group management report, which has been combined with the management report of SICK AG, for the fiscal year from January 1 to December 31, 2018. In accordance with the German legal requirements, we have not audited the content of the corporate governance statement included in the “Setting targets for the equal representation of men and women in management positions” section on page 56 of the group management report.

In our opinion, on the basis of the knowledge obtained in the audit,

- the accompanying consolidated financial statements comply, in all material respects, with the IFRSs as adopted by the EU, and the additional requirements of German commercial law pursuant to Sec. 315e (1) HGB (“Handelsgesetzbuch”: German Commercial Code) and, in compliance with these requirements, give a true and fair view of the assets, liabilities, and financial position of the Group as of December 31, 2018, and of its financial performance for the fiscal year from January 1 to December 31, 2018, and
- the accompanying group management report as a whole provides an appropriate view of the Group's position. In all material respects, this group management report is consistent with the consolidated financial statements, complies with German legal requirements and appropriately presents the opportunities and risks of future development. Our opinion on the group management report does not cover the content of the corporate governance statement referred to above.

Pursuant to Sec. 322 (3) Sentence 1 HGB, we declare that our audit has not led to any reservations relating to the legal compliance of the consolidated financial statements and of the group management report.

¹ Translation of the German independent auditor's report concerning the audit of the consolidated financial statements and group management report prepared in German

Basis for the opinions

We conducted our audit of the consolidated financial statements and of the group management report in accordance with Sec. 317 HGB and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer (Institute of Public Auditors in Germany) (IDW). Our responsibilities under those requirements and principles are further described in the "Auditor's responsibilities for the audit of the consolidated financial statements and of the group management report" section of our auditor's report. We are independent of the group entities in accordance with the requirements of German commercial and professional law, and we have fulfilled our other German professional responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinions on the consolidated financial statements and on the group management report.

Other information

The executive directors are responsible for the other information. The other information comprises the corporate governance statement pursuant to Sec. 289f (4) HGB, which is included in the "Setting targets for the equal representation of men and women in management positions" section on page 56 of the group management report.

Our opinions on the consolidated financial statements and on the group management report do not cover the other information, and consequently we do not express an opinion or any other form of assurance conclusion thereon.

In connection with our audit, our responsibility is to read the other information and, in so doing, to consider whether the other information

- is materially inconsistent with the consolidated financial statements, with the group management report or our knowledge obtained in the audit, or
- otherwise appears to be materially misstated.

Responsibilities of the executive directors and the Supervisory Board for the consolidated financial statements and the group management report

The executive directors are responsible for the preparation of the consolidated financial statements that comply, in all material respects, with IFRSs as adopted by the EU and the additional requirements of German commercial law pursuant to Sec. 315e (1) HGB, and that the consolidated financial statements, in compliance with these requirements, give a true and fair view of the assets, liabilities, financial position, and financial performance of the Group. In addition, the executive directors are responsible for such internal control as they have determined necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, the executive directors are responsible for assessing the Group's ability to continue as a going concern. They also have the responsibility for disclosing, as applicable, matters related to going concern. In addition, they are responsible for financial reporting based on the going concern basis of accounting unless there is an intention to liquidate the Group or to cease operations, or there is no realistic alternative but to do so.

Furthermore, the executive directors are responsible for the preparation of the group management report that, as a whole, provides an appropriate view of the Group's position and is, in all material respects, consistent with the consolidated financial statements, complies with German legal requirements, and appropriately presents the opportunities and risks of future development. In addition, the executive directors are responsible for such arrangements and measures (systems) as they have considered necessary to enable the preparation of a group management report that is in accordance with the applicable German legal requirements, and to be able to provide sufficient appropriate evidence for the assertions in the group management report.

The Supervisory Board is responsible for overseeing the Group's financial reporting process for the preparation of the consolidated financial statements and of the group management report.

Auditor's responsibilities for the audit of the consolidated financial statements and of the group management report

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and whether the group management report as a whole provides an appropriate view of the Group's position and, in all material respects, is consistent with the consolidated financial statements and the knowledge obtained in the audit, complies with the German legal requirements and appropriately presents the opportunities and risks of future development, as well as to issue an auditor's report that includes our opinions on the consolidated financial statements and on the group management report.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Sec. 317 HGB and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer (IDW) will always detect a material misstatement. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements and this group management report.

We exercise professional judgment and maintain professional skepticism throughout the audit. We also

- Identify and assess the risks of material misstatement of the consolidated financial statements and of the group management report, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinions. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit of the consolidated financial statements and of arrangements and measures (systems) relevant to the audit of the group management report in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of these systems.
- Evaluate the appropriateness of accounting policies used by the executive directors and the reasonableness of estimates made by the executive directors and related disclosures.

- Conclude on the appropriateness of the executive directors' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in the auditor's report to the related disclosures in the consolidated financial statements and in the group management report or, if such disclosures are inadequate, to modify our respective opinions. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to be able to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements present the underlying transactions and events in a manner that the consolidated financial statements give a true and fair view of the assets, liabilities, financial position and financial performance of the Group in compliance with IFRSs as adopted by the EU and the additional requirements of German commercial law pursuant to Sec. 315e (1) HGB.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express opinions on the consolidated financial statements and on the group management report. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinions.
- Evaluate the consistency of the group management report with the consolidated financial statements, its conformity with (German) law, and the view of the Group's position it provides.
- Perform audit procedures on the prospective information presented by the executive directors in the group management report. On the basis of sufficient appropriate audit evidence we evaluate, in particular, the significant assumptions used by the executive directors as a basis for the prospective information, and evaluate the proper derivation of the prospective information from these assumptions. We do not express a separate opinion on the prospective information and on the assumptions used as a basis. There is a substantial unavoidable risk that future events will differ materially from the prospective information.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Freiburg i. Br., March 20, 2019

Ernst & Young GmbH
Wirtschaftsprüfungsgesellschaft

Nietzer
Wirtschaftsprüfer
(German Public Auditor)

Busser
Wirtschaftsprüfer
(German Public Auditor)

THE SUPERVISORY BOARD

of SICK AG



Gisela Sick, Waldkirch
(Honorary Chairwoman)
Retired

Klaus M. Bukenberger, Schenkenzell
(Chairman)
Corporate Governance Consulting, Stuttgart
Member of the Supervisory Board since 2002

Additional Supervisory Board memberships:

- Carl Mahr GmbH & Co. KG, Göttingen, Chairman of the Advisory Board
- Deutsche Bank AG, Stuttgart, member of the Advisory Board
- NIBC Bank Deutschland AG, Frankfurt, member of the Advisory Board
- ILLIG Maschinenbau GmbH & Co. KG, Heilbronn, Deputy Chairman of the Advisory Board
- Investcorp Group, London (UK), Advisory Director
- 7-Industries B.V., Amsterdam (Netherlands), Chairman of the Supervisory Board
- TRICOR AG, Bad Wörishofen, Deputy Chairman of the Supervisory Board

Karl-Heinz Barth, Donaueschingen¹
Chairman of the Works Council of SICK STEGMANN GmbH, Donaueschingen, since October 21, 2010
Deputy Chairman of the Group Works Council since July 9, 2014
Member of the Supervisory Board since May 16, 2018

Franz Bausch, Hinterzarten
Tax consultant, chartered accountant
Member of the Supervisory Board since 1999

Additional Supervisory Board membership:

- Deutsche Steuerberater-Versicherung – Pensionskasse des steuerberatenden Berufs VVaG, Bonn, Chairman of the Supervisory Board

Prof. Dr. Mark K. Binz, Stuttgart
Lawyer
Member of the Supervisory Board since 2007

Additional Supervisory Board memberships:

- Faber-Castell AG, Stein, Deputy Chairman of the Supervisory Board
- Fielmann Aktiengesellschaft, Hamburg, Chairman of the Supervisory Board

Dr. Bernd Cordes, Emmendingen¹
Head of the Global Business Center 07, SICK AG, Waldkirch
Member of the Supervisory Board since 2017

Additional Supervisory Board membership:

- HYDRO Systems KG, Biberach/Baden, member of the Advisory Board

Sebastian Glaser, Munich
Managing Director of Sick Holding GmbH, Freiburg
Member of the Supervisory Board since 2017

Engelbert Herbstritt, Waldkirch¹
Chairman of the Group Works Council until May 15, 2018
Member of the Supervisory Board until May 16, 2018

¹ Employee representative.

Roberto Hernandez, Waldkirch¹

(Deputy Chairman until May 16, 2018)
Chairman of the Works Council of SICK AG, Waldkirch,
until April 8, 2018
Chairman of the Central Works Council of SICK AG,
Waldkirch, until May 13, 2018
Member of the Supervisory Board until May 16, 2018

Dr. Matthias Müller, Braunschweig¹

Head of Finance in the Federal Presidium of the DGB
("Deutscher Gewerkschaftsbund": Confederation
of German Trade Unions), Berlin
Member of the Supervisory Board since 2002

Additional Supervisory Board memberships:

- Berufsfortbildungswerk Gemeinnützige
Bildungseinrichtung des DGB GmbH (bfw), Düsseldorf,
member of the Supervisory Board
- BGAG GmbH, Frankfurt,
member of the Advisory Board
- RWE Power AG, Essen,
member of the Supervisory Board

Renate Sick-Glaser, Freiburg

Chairwoman of the Advisory Board of Sick Holding GmbH,
Freiburg, since January 1, 2019
Managing Director of Sick Glaser GmbH, Freiburg
Member of the Supervisory Board since 2007

Hermann Spieß, Breisach¹

Trade Union Secretary of IG Metall
Member of the Supervisory Board since 2002

Additional Supervisory Board membership:

- Constellium Deutschland GmbH, Singen,
Deputy Chairman of the Supervisory Board

Susanne Tröndle, Waldkirch¹

(Deputy Chairwoman seit 16. Mai 2018)
Chairwoman of the Works Council and the Central Works
Council of SICK AG, Waldkirch, since May 14, 2018
Chairwoman of the Group Works Council since May 15, 2018
Member of the Supervisory Board since May 16, 2018

Dr. Dipl.-Ing. Eberhard Veit, Göppingen

Managing Director of 4.0-Veit GbR, Göppingen
Member of the Supervisory Board since 2017

Additional Supervisory Board memberships:

- Bizerba SE & Co. KG, Balingen,
member of the Supervisory Board
- Carl Zeiss AG, Oberkochen,
member of the Supervisory Board
- ebm-papst GmbH & Co. KG, Mulfingen,
member of the Advisory Board
- Heitkamp & Thumann KG, Düsseldorf,
member of the Advisory Board
- 7-Industries B.V., Amsterdam (Netherlands),
member of the Supervisory Board
- Phoenix Contact GmbH & Co. KG, Blomberg/ Lippe,
Chairman of the Advisory Board
- Schwarz GmbH & Co. KG, Göppingen,
Chairman of the Advisory Board
- TÜV Süd AG, Munich, member of the Supervisory Board
- Wagner International, Markdorf and Altstätten
(Switzerland), member of the Administrative Board

Thomas Weckopp, Korschenbroich¹

Chairman of the Works Council of SICK Vertriebs-GmbH,
Düsseldorf
Member of the Supervisory Board since 2017

¹ Employee representative.

THE EXECUTIVE BOARD

of SICK AG

DR. ROBERT BAUER, CHAIRMAN

Products & Technology, member of the Executive Board since January 1, 2000

Dr. Robert Bauer came to the company in 1994 as Division Manager of Research & Development in the area of automation technology; in 1998, he assumed overall responsibility on the Management Board for Research & Development. Born in Munich in 1960, Robert Bauer studied Electrical Engineering with special emphasis on Electrophysics / Optics at the Technical University of Munich and he received his doctorate in 1990.



REINHARD BÖSL

Systems & Industries, member of the Executive Board since July 1, 2007

Born in the East Bavarian Parkstein in 1958, Reinhard Bösl studied Computer Science in Munich. Afterward, he held a variety of positions at Witron Logistik + Informatik GmbH, Parkstein, and became the company's Managing Director in 1998. Since 2004, he had been active in management positions at Krones AG, Neutraubling, including as Managing Director of the subsidiary Syskron GmbH.

MARKUS VATTER

Finance, Controlling & IT, member of the Executive Board since July 1, 2006

Markus Vatter was born in Wiesbaden in 1966. After obtaining his degree at the Technical University in Darmstadt, the industrial engineer started his professional career at Robert Bosch GmbH, Stuttgart. Afterward, he worked for Müller Weingarten AG, before joining KaVo Dental GmbH, Biberach, in 2001. His most recent position there was that of a Commercial Managing Director.



DR. MATS GÖKSTORP

Sales & Service, member of the Executive Board since May 1, 2013

Born in Stockholm in 1965, Dr. Mats Gökstorp studied Computer Engineering at Linköping University in Sweden and at Case Western Reserve University in the USA. He received his doctorate in 1995. He joined the small university spin-off company Integrated Vision Products AB, where he learned all aspects of entrepreneurship and became the company's Managing Director in 2001. Since 2003, he has held various positions within the SICK Group. In 2007, he was appointed to the Management Board, first as Division Manager and later with overall responsibility for Customer Fulfillment.

DR. MARTIN KRÄMER

Human Resources, Procurement, Legal & Compliance, member of the Executive Board since July 1, 2012

Born in Rottweil in 1960, Dr. Martin Krämer studied law at the universities of Tübingen and Freiburg. He received his doctorate in 1998. From 1991 onward, he practiced initially as a lawyer and partner at the law firm of Dr. Müller und Kollegen in Künzelsau. Then he joined the Lidl & Schwarz Corporate Group, where he worked as Head of the Legal Division. Four years later, he assumed his position as Head of the Legal Department at SICK AG.



FINANCIAL CALENDAR 2019



April 30	Publication of the 2018 balance sheet ratios
May 22, 5 p.m.	Annual General Shareholders' Meeting 2019 SICK AG's company restaurant, Waldkirch
May 27	Dividend payment
August	Publication of the 2019 half-year figures

IMPRINT



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