

# KOCOS MESSTECHNIK AG

# KoCoS



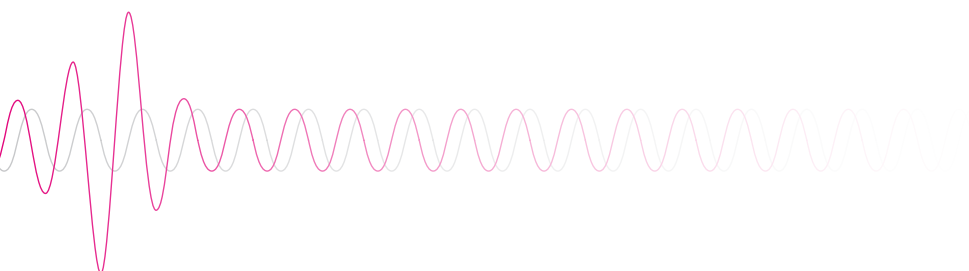
THE TECHNOLOGY GROUP | WHERE PRECISION MEETS QUALITY



**KoCoS**   
A FRIEND OF ENERGY [ENG]

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# EXPERTISE PRODUCTIVITY INNOVATION



**Thomas Becker**  
CEO

Professional expertise, productivity and innovation are the foundations on which the KoCoS group is built worldwide.

KoCoS celebrated its 25th anniversary in 2013 and looks back on continuous growth from the start. Looking forward, our aim is to further foster and promote the KoCoS technologies we develop in-house to the very highest standards.

KoCoS has come a long way since its beginnings. After initially specializing in load management systems, KoCoS has expanded into various new industries as well as in every geographical direction. But the company's core values remain the same as ever: customer focus, dependability and freedom from the blind pursuit of short-term profit. By concentrating on these values we can work with our customers to

realize new technologies and inventions without sacrificing speed or quality.

Our vision for the future is to continue to develop and optimise our processes for the benefit of our customers in the power, automotive, semiconductor and food industries.

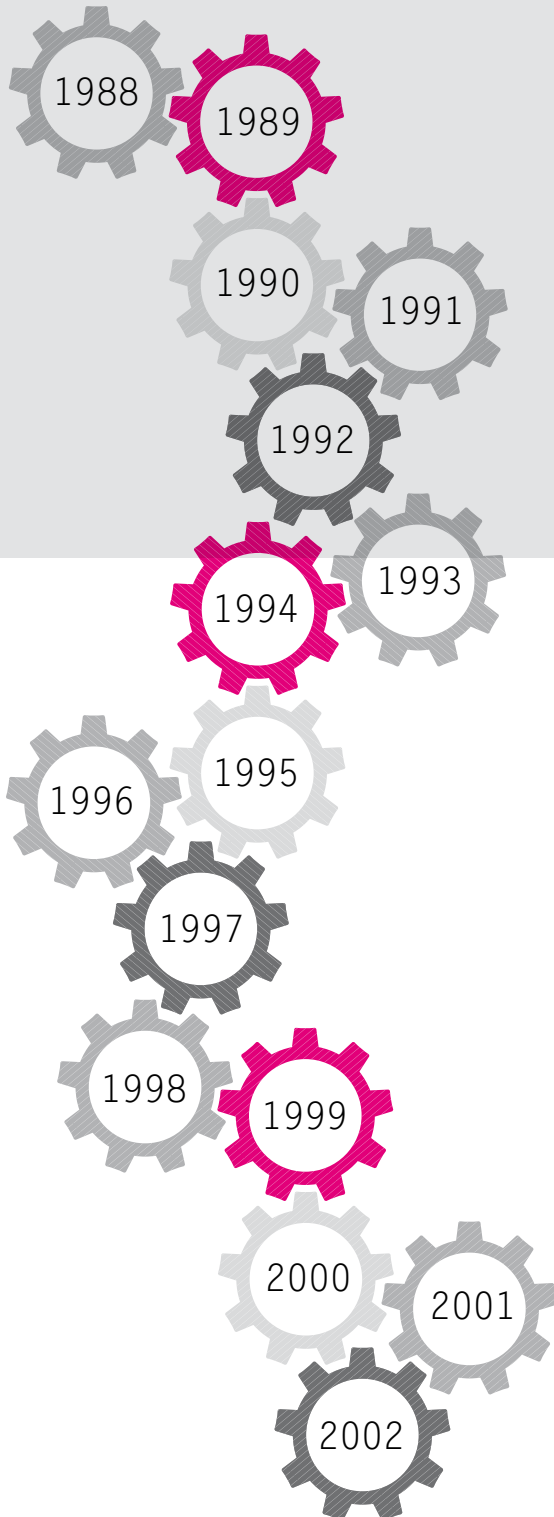
We will continue to give our customers the very highest quality and the best service at fair prices and will strive to create jobs and foster good relationships worldwide.

This brochure introduces the KoCoS Group and the wide variety of products and solutions it delivers. I hope you enjoy reading it.



Thomas Becker

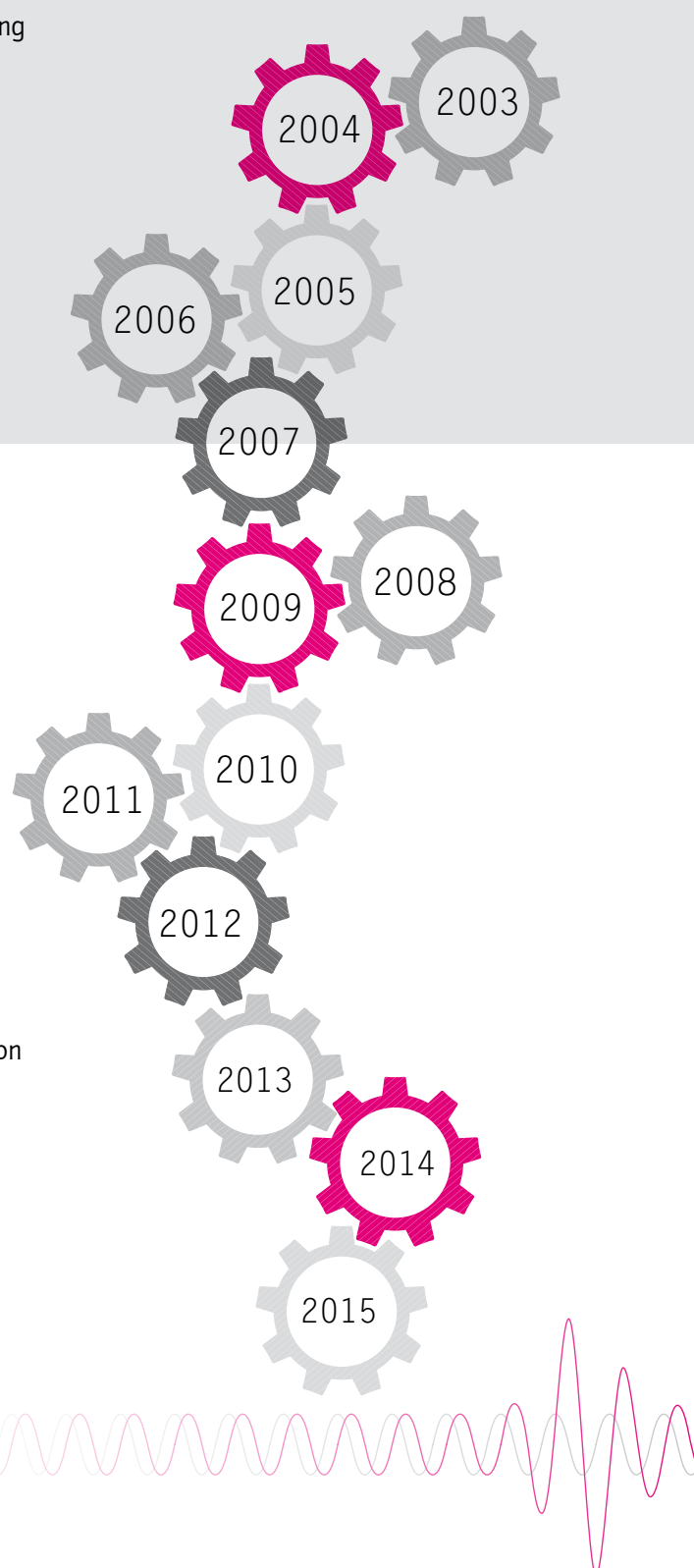
## TIMELINE



- 1988** Foundation in a converted garage under the name KoCoS Mess- und Prozesstechnik GbR
- 1990** Move to new premises in the town centre of Korbach
- 1992** Acquisition of the fault recorder business owned by HERREN electronics
- 1992** Market launch of the digital fault recorder system developed by KoCoS
- 1993** Market launch of the switchgear test system
- 1995** Relocation to the present site on the Südring in Korbach
- 1995** Foundation of the first KoCoS subsidiary in South Africa
- 1996** Market launch of the protection relay test system
- 1997** Transformation into KoCoS Messtechnik AG
- 1998** Official opening of the building for the production department in Korbach
- 1999** Market launch of the meter test system
- 2000** Foundation of KoCoS Optical Measurement GmbH
- 2000** Market launch of the power quality measuring system
- 2002** Foundation of the KoCoS subsidiary on the East Coast of the USA
- 2003** Market launch of the edge profile measuring system
- 2004** Market launch of the catalytic converter measuring system
- 2006** Foundation of KoCoS Engineering GmbH
- 2006** Foundation of KoCoS Automation GmbH

# TIMELINE

- 2007** Official opening of a new office building and training centre in Korbach
- 2007** Foundation of the KoCoS subsidiary in France
- 2007** Foundation of the KoCoS subsidiary in China
- 2007** Market launch of the power sources product line
- 2008** Market launch of the resistance measuring system
- 2009** Foundation of KoCoS audentec GmbH
- 2009** Foundation of the KoCoS subsidiary in Mexico
- 2009** Foundation of the KoCoS subsidiary on the West Coast of the USA
- 2010** Official opening of a new building in Weimar
- 2010** Foundation of the KoCoS subsidiary in England
- 2010** Market launch of the vacuum test system
- 2011** Foundation of the KoCoS subsidiary in Austria
- 2013** Foundation of the KoCoS subsidiary in Poland
- 2013** Foundation of the KoCoS subsidiary in Bahrain
- 2014** Foundation of the KoCoS subsidiary in Sweden
- 2014** Official opening of a new building for the production department and a new training centre in Weimar
- 2015** Foundation of the KoCoS subsidiary in Canada







## PROFILE

### Company profile

The KoCoS Technology Group is a group of companies with a global presence which develop, manufacture and sell measuring and test systems for equipment in electricity supply systems and laser-optical inspection systems for quality monitoring.

KoCoS harnesses the knowledge of all its employees on a daily basis in order to accomplish challenging and unusual tasks in the areas of customer support, product development, manufacturing and sales. In doing so, we fulfil the high expectations of our customers all over the world day after day.

### Mission

Excellence is born of core competencies which are composed of the knowledge, capabilities and experience of each individual. Professional expertise and interdisciplinary cooperation provide the basis for the development of innovative solutions. For us, economic efficiency and sustainability have a central role to play in the process.

Keeping our word, providing orientation, taking on commercial and social responsibility, valuing our employees and the company's achievements and gaining a firm foothold in the market in order to attract loyal customers and partners: these are the objectives which determine our actions day-to-day. The key features of our solutions are application-oriented, innovative technologies, excellent reliability and optimum implementation.

## Guiding principles

We win the confidence of our customers on the strength of our achievements! We ensure that our solutions meet the most stringent of quality requirements and always use state-of-the-art technologies. As a learning company, we strive for continuous improvement in all our business processes. The quality of our work and the acceptance it receives are reflected in the steadily growing numbers of industrial customers who put their trust in our products and services. Building successful, long-term partnerships with our customers is our primary aim. This is the driving force behind all our endeavours. Not only does the know-how we have developed over the years play an essential role here, so does the importance we place on predicting the needs and expectations of our customers in advance and acting accordingly.

Our employees are the source of our success. Their commitment and their capabilities enable us to deliver the excellent results our long-standing customers have come to rely on. We have the well-being, the personal motivation and the development of each and every individual employee at heart and we are committed to supporting them in all they do in order to ensure that our customers can continue to expect excellence and innovation from KoCoS in the future. Our company culture is characterized by open dialogue and clearly formulated common goals.

Our cooperative style of management fosters a team-oriented working culture characterized by mutual respect and fairness. Good communication is

not only important to us within the company - we also place great emphasis on intensive cooperation and partnership with our suppliers. We value them just as highly as we do our customers and treat them with the same respect.

## Outstanding quality for reliability and durability

Our products enjoy an excellent reputation and meet the most stringent of quality standards. One of the cornerstones of our company philosophy is the strict implementation of the quality management system to DIN EN ISO 9001:2008. It is our intention to constantly improve our products and processes.



GUIDING  
PRINCIPLES

## INSIDE KOCOS

### Sales & Applications

Whether you require pre-sales services, training, after-sales support or project management, we make sure you receive expert assistance swiftly from the right contact person. Our strong commitment to putting customers first is reflected in the first-class, friendly service we provide. As a reliable and reputable partner, we look after our customers above and beyond the point of sale. Earning the confidence of our business partners is exceedingly important to us because this provides the basis for successful, long-term partnerships. In addition to the direct distribution of KoCoS products within Germany, the KoCoS group currently numbers 12 international subsidiaries which work in close cooperation with us on a daily basis. If we have no direct presence in a region, local distributors or representatives are of course available instead. Thanks to our growing network of service and sales locations across the globe, KoCoS is never far away.

### Service

Our service department works in close cooperation with product managers and sales staff to provide customers with the support they need. With in-depth knowledge of KoCoS products and their applications, our technical staff and engineers do not only provide support during commissioning, they are also available for advice and assistance later on when you use our products day-to-day. Customer satisfaction is a top priority! This is not just a slogan - our highly motivated employees are committed to walking the talk. Thanks to the streamlined structure of the company, its flat hierarchy and a culture which encourages innovative and critical thinking, our business partners profit from efficient cooperation characterized by a consistently goal-focused approach.





## INSIDE KOCOS



### Research & Development

All KoCoS products are cutting-edge solutions developed in-house to the very highest standard. This is achieved by a team of engineers and computer scientists who employ a forward-looking, future-oriented approach in order to turn our visions into realities. The universal modular concept underpinning both hardware and software is highly efficient as it enables individual components to be used in a number of different products. This emphasis on standardisation guarantees a consistently high standard of quality.

### Production

KoCoS has production facilities in three different locations: measuring and test systems for use in electricity supply networks are manufactured at our headquarters in Korbach, optical measuring systems for the semi-

conductor, automotive and packaging industries are made in Weimar and test systems for electricity meters are made in Cape Town. The fact that so much of our manufacturing is carried out in-house guarantees levels of quality which are well above average.

### Administration

The customer service mindset is also of central importance to our commercial department, although only a small number of its staff have direct contact with customers. The department sees its main task as ensuring that orders are processed smoothly from start to finish, beginning with the receipt of an order and ending with the punctual delivery of our products. The staff are not only responsible for purchasing, inventory management and material planning, they also take care of shipping, customs handling and invoicing.

## KOCOS IN GERMANY

### **KoCoS Messtechnik AG**

KoCoS Messtechnik AG is a leading manufacturer of measuring and test systems for use in the field of industrial and public electricity supply networks. High performance, easy operation, user-centric flexibility and excellent quality are key features of all KoCoS products.

### **KoCoS Engineering GmbH**

KoCoS Engineering GmbH provides a comprehensive range of services for optimising the cost efficiency and quality of supply of electricity supply systems. Our motto "All-round services for the power industry" says it all: we put recognized experts at your disposal to deliver one-

stop, powerful solutions covering design checking, engineering, project management, commissioning and maintenance for electrical installations.

### **KoCoS Optical Measurement GmbH**

KoCoS Optical Measurement GmbH develops laser optical measuring systems which are

used in a number of sectors, including the automotive and semiconductor industries, to automatically measure the contours and verify the geometrical parameters of a wide range of components which vary greatly in size, shape and surface condition.

### **KoCoS Automation GmbH**

KoCoS Automation GmbH develops and manufactures automation solutions which are suitable for clean room environments and set the international benchmark for geometrical quality inspection on the shop floor. They can be used to identify, transport and position highly sensitive semi-conductor wafers. KoCoS handling systems are also rated highly in the food industry.

### **KoCoS audentec GmbH**

Test systems developed by KoCoS audentec GmbH are used throughout the world to inspect vacuum packaging. A wide range of containers, including bottles, jars and cans, can be monitored in-line during the production process. Non-contact inspection identifies defective containers for automatic rejection.





## KOCOS - AN INTERNATIONAL FAMILY



Since founding our first subsidiary in Johannesburg, South Africa, the KoCoS family has grown steadily by adding new branch offices in new locations. We currently have 12 international subsidiaries and the continued development of this network has a high priority for KoCoS.

When we speak of "close cooperation with our customers" we really mean what we say - we are moving closer to our customers in the very truest sense of the word. Thanks to our network of branch offices we are always close at hand, our customers can reach us quickly and there is no need for them to travel far or concern themselves with time differences. Service and support can be provided without delay as the prompt supply of spare parts is also managed by our subsidiaries.

Personal contact with our customers helps us develop long-term partnerships and enables us to engage in direct dialogue with them in order to produce effective solutions. Neither language nor cultural barriers get in the way, as our employees not only have the necessary technical knowledge but also a good feeling for the mentality of the country concerned. We really understand our customers.

As well as providing our customers with excellent support and advice, our subsidiaries also offer expert assistance to our independent partners. The considerable know-how of our specialists which reflects the technical virtuosity of our products is passed on to our representatives and distributors. Together they guarantee that our customers all over the world receive first class service wherever they are.





We assume responsibility for our employees, for the society we live in and for the environment. We strive to take concrete action in order to fulfil these responsibilities while offering a helping hand to people who are suffering and in desperate need. For some years now we have been supporting a number of aid projects which are very close to our heart. We are convinced that these projects are run responsibly.

#### **Missionsärztliche Familie der Verlassensten(FMMD) e.V.**

Familia Medico-Missionaria Desertissimorum

FMMD aims to provide social, spiritual, medical and financial aid to the forsaken. FMMD would like to reach out to the forsaken in Christian fellowship and provide them with the assistance they so badly need.

The focus of the organisation's work is on aid projects in Benin (West Africa) and in the Democratic Republic of the Congo (Central Africa). FMMD is a small organisation with a big personality which aims to give a future to children in these countries so blighted by poverty and hunger and whose health care systems are so basic as to be almost non-existent. KoCoS gives its wholehearted support and commitment to this work.

[www.desertissimus.org](http://www.desertissimus.org)

#### **SOS Children's Villages**

SOS Children's Villages International has been standing up for children's needs, children's concerns and children's rights in 133 different countries for more than 60 years. While the majority of the children looked after by the organisation in developing and newly industrialising countries are orphans, most of the children looked after by the organisation in industrial nations suffer from neglect, their biological parents are unable to bring them up themselves.

It is in giving that we also receive happiness. This is truer than ever when we give sustainably on a long-term basis - when we provide a child with a happy childhood in a family environment, we give them the best possible preparation for the future. By supporting SOS Children's Villages International, KoCoS helps put a smile back on the faces of many children all over the world.

[www.sos-childrensvillages.org](http://www.sos-childrensvillages.org)

#### **Balthasar Children's Hospice**

In Germany, more than 4000 children are diagnosed with an incurable disease every year. Germany's first children's hospice, the Balthasar hospice, was opened in September 1998 to support families on the difficult journey







which starts with the diagnosis of a terminal illness and ends with a child's death. The staff give families and siblings the care and support they require while taking their needs and their world view into account.

As hospices for children and young people are not financed by the state and because only a small proportion of about 30% of the costs are met by health insurance companies, the children's hospice relies on donations. KoCoS supports the hospice to make sure it can continue to be a place for life and laughter, a place for death and grief.

[www.kinderhospiz-balthasar.de](http://www.kinderhospiz-balthasar.de)

For more information on all our aid projects, please go to  
[www.kocos-care.org](http://www.kocos-care.org)



## STARTING YOUR CAREER AT KOCOS

We offer young people apprenticeships in an international environment with future-oriented professional skills development and personal supervision by our team of trainers who place equal emphasis on enhancing social skills, instilling a sense of responsibility and fostering individual capabilities.

In addition to combined vocational and degree programmes in computer science, engineering and business administration, we offer apprenticeships in the following professions:

- IT specialist in software development
- Electronic technician for devices and systems
- Management assistant in wholesale and foreign trade
- Office management assistant
- Digital media designer specializing in design and technology

We also give scholarships for further education, enable employees to take part in training courses held by our external partners, Microsoft and Intel, and provide opportunities for work experience abroad through our international offices.



## KOCOS PRODUCTS

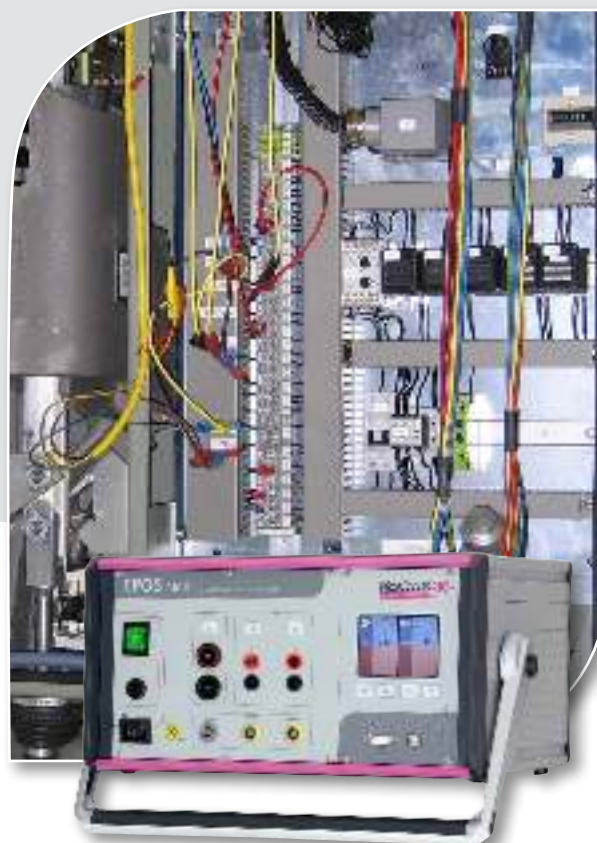


### CIRCUIT BREAKER TESTING

**Professional measurement technology for use on site and on the shop floor**

The reliability of switchgear devices has a decisive influence on the availability, safety and economic efficiency of electrical supply networks.

For this reason, the test instruments of the **ACTAS** series are used to check the state of the chambers and drive of switchgear devices on a regular basis. These tests include the precise acquisition, logging and evaluation of the major electrical and mechanical parameters. Thanks to the universal modular concept behind the ACTAS test systems, it is possible to provide exactly the right solution for each and every application, from portable starter devices through to professional solutions for fully automated final factory tests.



### POWER SOURCES

**Powering and testing with high signal precision**

High-accuracy current and voltage sources are becoming increasingly important in many areas of electrical engineering and nowhere is this more evident than in the fields of measurement and test technology. The universal current and voltage sources of the **EPOS** series come into their own whenever maximum power and high signal accuracy are required, making them the perfect choice when testing, setting and calibrating electricity meters, protection relays, fault recorders, power meters or power quality analysers.

The model which features a particularly powerful AC/DC source can be used as a battery substitute in switching stations and as a power supply for tests with ACTAS switchgear test systems, as well as for testing motors and release coils.



## KOCOS PRODUCTS



### RESISTANCE MEASUREMENT

#### Measuring devices for the determination of extremely low electrical resistances

The high-precision ohm meters of the **PROMET** series are used to determine very low electrical resistances in the  $\mu\Omega$  range. The adjustable test current of up to 600 A in combination with a four-wire measuring procedure delivers measurement results which meet stringent accuracy requirements. State-of-the-art power electronics coupled with a robust design guarantee excellent reliability for use as a portable device in switching stations and industrial environments. Typical applications include determining the contact resistance of switchgear devices and determining the resistance on inductive loads such as transformers.



### PROTECTION RELAY TESTING

#### Systems for complex test tasks

The purpose of protection relays is to recognize faults in power supply systems promptly and without fail and to minimize impairments to the power supply by selectively switching off faulted sections of the power system.

The test systems of the **ARTES** product line are used to carry out functional tests on all types of protection devices, including DT/IDMT relays, distance protection relays and differential protection relays, to ensure that they function correctly.



## KOCOS PRODUCTS

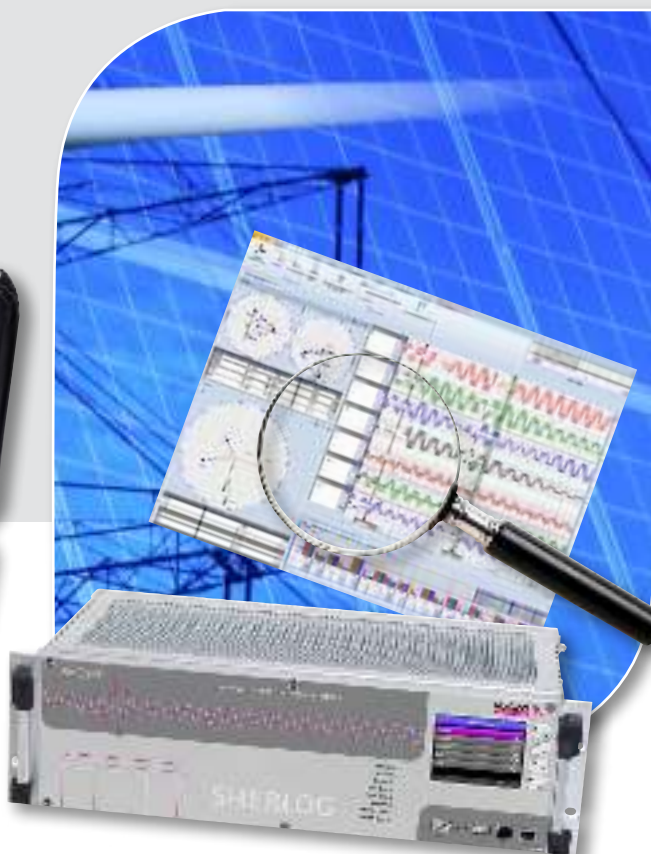


### POWER QUALITY MEASUREMENT

#### **The new benchmark in power quality measurement**

Not only the reliability of supply, but also the quality of electrical power is of prime importance for the smooth operation of technical equipment used in industry, medicine and electronic data processing.

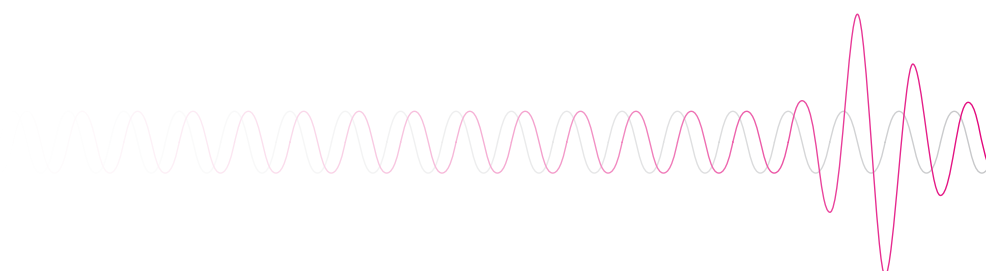
The measuring systems of the **EPPE** series continuously and precisely record all the electrical parameters of the power supply. They deliver detailed quality evaluations which reveal even the smallest of deviations and contribute to identifying the cause of disturbances.



### DIGITAL FAULT RECORDING

#### **The network detectives**

The measuring devices of the **SHERLOG** range make very high-resolution recordings of all the disturbances which occur in power supply systems. The behaviour of protection and switchgear devices during these system disturbances is recorded at the same time. The data acquired in this way can be used to help restore network operation efficiently and effectively if a fault occurs and provides the planners of installations and protection equipment with the information they need in order to be able to extend networks and optimise the reliability of supply.



## KOCOS PRODUCTS



### METER TESTING

#### Powerful solutions for exacting requirements

The latest generation of electricity meters offer great improvements in accuracy and functionality compared with their predecessors of just a few years ago. This has resulted in more complex requirements for the tests which are necessary to ensure that they function correctly.

The meter test systems of the **METES** series are used to test the accuracy of Ferraris meters and electronic electricity meters under any operating conditions. The impact of system perturbations such as harmonics or flicker on the meter can be taken into consideration during tests.



### CATALYTIC CONVERTER MEASUREMENT

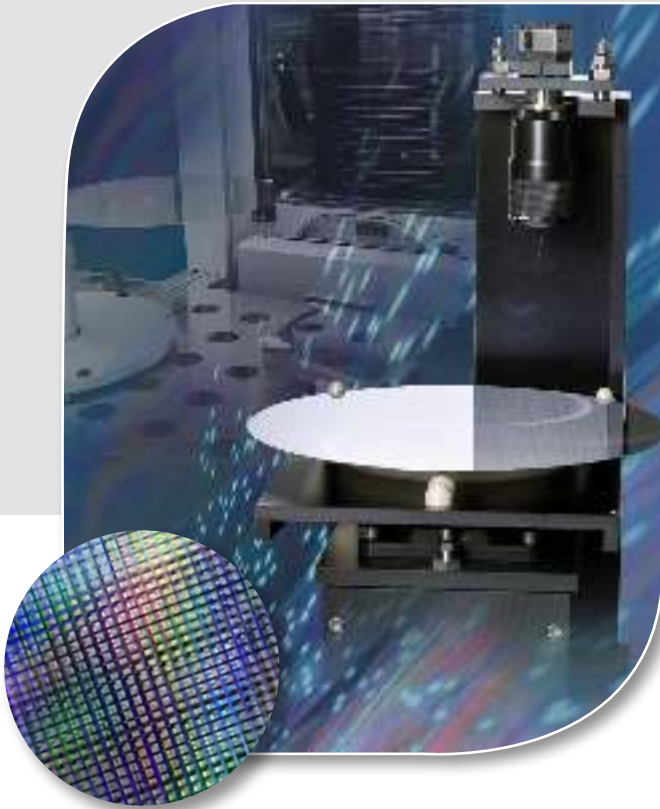
#### Fast quality control using high-precision laser triangulation

The exact position of the ceramic substrate within the catalytic converter sleeve is of decisive importance for the durability of exhaust catalytic converters. Premature damage may result if the substrate is fixed too loosely or too tightly.

**OMCAT** catalytic converter measuring systems provide a fast and efficient means of carrying out complex geometrical measurements on exhaust catalytic converters and of determining the gap bulk density (GBD).

OMCAT measuring systems feature innovative measurement functions combined with reliable technology. High measurement speed and accuracy and high availability due to their rugged construction are the major strengths of these systems which come to the fore in the harsh conditions which prevail in production environments.

## KOCOS PRODUCTS



### WAFER EDGE PROFILE MEASUREMENT

#### **Light-sectioning technology for three-dimensional edge geometry measurements**

The manufacture of semiconductors such as microprocessors requires a very high level of accuracy during the production of silicon wafers.

**WATOM** can carry out fully automatic, non-contact measurements of the edge profiles and diameter in accordance with SEMICON standards. A special feature is the system's ability to make measurements of the mark cut into the edge of the wafer to indicate the crystal orientation.

Because of its high measurement accuracy of less than 1.5 µm, leading wafer manufacturers across the world use WATOM for shop-floor geometrical quality control.



### VACUUM INSPECTION

#### **In-line inspection systems for bottles, jars and cans**

Vacuum packaging is an important method of preserving food without resorting to chemical additives. However, if the packaging is defective, foodstuffs may spoil long before the given expiry date.

**INDEC** vacuum test systems monitor a wide range of containers during the production process, including bottles, jars and cans, by measuring the cap panel concavity of their closures which is dependent on the vacuum inside. This non-contact inspection reliably identifies defective containers for automatic rejection.



## KOCOS PRODUCTS



### KOCOS ENGINEERING

#### **All-round services for the power industry**

As a partner to the power industry at home and abroad, KoCoS offers a wide range of services related to design checking, project management, engineering, commissioning and maintenance for electrical installations.

At the KoCoS Service Centre in Dorsten, customer projects, such as the creation of new protection concepts and the analysis and optimisation of existing installations, are coordinated and supervised from start to finish. The range of services connected with commissioning and maintenance includes the efficient testing of primary and secondary equipment, such as protection relays, voltage regulators and controllers for earth fault compensation coils, as well as comprehensive documentation in compliance with valid standards.

Analysis and assessment of the quality of supply also belong to the service portfolio, as does the commissioning service which covers the installation, configuration and supervision of all KoCoS measuring and test systems.

Any selection of service and engineering modules can be combined to form a customized service package. These service packages give customers planning reliability, guarantee they receive a tailor-made, economical solution and leave them with more time to devote to their core business. We are constantly extending the range of services we offer as we tap into the broad knowledge base and expertise built up by KoCoS employees to provide our customers with effective support and one-stop solutions which make economic sense.



## TRAINING COURSES & SEMINARS

Regular product training courses are held at our training centres in Korbach and Weimar, as well as on customers' premises. These training courses are run by qualified engineers with many years of professional experience. Special hands-on seminars and workshops which deal primarily with application-related themes round off our training portfolio. A careful combination of theory and practice makes for efficient knowledge transfer, while practical applications and demonstrations enable participants to consolidate what they have learnt.



## KOCOS WORLDWIDE

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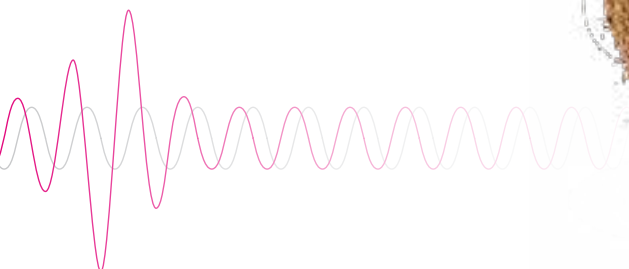
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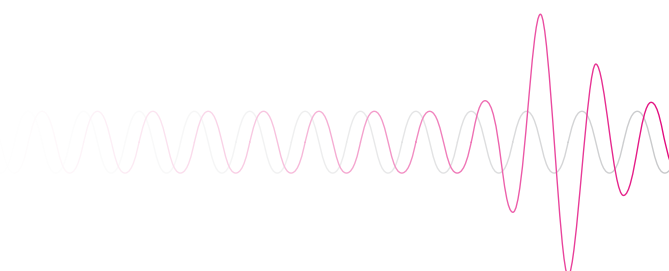
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*we are learning every day*

*we use and develop  
state-of-the-art technologies*

*we build solutions which  
contribute to our  
customers' success*

*we take our responsibilities  
seriously*

*we love what we do!*



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