

01/2011

sensors automation

The customer magazine from JUMO

JUMO

The future of industrial sensor technology

Key technology
of the 21st century

| Page 4 |



**Safety temperature
limiters and monitors**

as per DIN EN 14597

| Page 6 |



35 years of JUMO Metz

France is the partner country
of the Hanover Trade Fair 2011

| Page 10 |



**Hydrostatic
filling level measurement**

"Pressure" as a means to an end

| Page 12 |





Universally specialized



More than **sensors + automation**

Measurement, analysis, control – JUMO supplies the right transducer

You appreciate high performance, precision and durability? You know that quality is the result of experience, innovation and practical relevance? Then you have found the right partner:

Welcome to JUMO.

Dear Readers,



If you have been following the media, you may have seen the increasing number of articles about energy efficiency. What is behind all this?

To increase efficiency you need precise information about the process parameters, so as to be able to adapt processes optimally to the safety requirements of the population. By increasing the number of measuring points within the process, it is possible to further optimize automation processes. The key technology for this is industrial sensor technology.

Temperature sensors play an important role in this area. The huge growth of demand in the global market demand for platinum chip temperature sensors reflects the trend in this area and represents an up-and-coming market for us. By actively involving the customer in the value-adding process, it is also possible for us to produce customized sensors in the area of temperature, pressure, flow, filling level and water quality, and play a part in shaping the market process.

However, we recognize that high product quality is not the only requirement for convincing our customers; quality in terms of credibility and honesty forms the basis for working together in a spirit of trust and cooperation. We would like to continue building on this and further improve our customer relations.

Put us to the test and discover JUMO's added value!

JUMO. More than sensors + automation.

Your
Senior Management Team

Bernhard Juchheim

Michael Juchheim

Carsten Juchheim



4



6



8

Highlighted Topic 4

The future of industrial sensor technology

Key technology of the 21st century

Products and Services 6

A high level of safety and reliability, simple operation

Safety temperature limiters and monitors
as per DIN EN 14597

Innovations

New products

Practical Applications 8

Customer focus in the area of temperature probes

From the design stage to commissioning

Corporate Group 10

Working where others spend their holidays

JUMO sends trainees and student interns
abroad – a worthwhile investment

JUMO continuously adds to its product range

Ceramic pressure sensors from our own production

France is a partner of the Hanover trade fair this year

And JUMO has been a competent partner
in France for 35 years

Code of conduct

Worth Knowing

Hydrostatic filling level measurements

"Pressure" as a means to an end

12

Dates

JUMO at trade shows 2011

Fairs and trade shows in Germany

14

Fairs and trade shows in other countrys



RTD temperature probe Pt100
with terminal head form B



Piezoresistive stainless steel
pressure sensors



Inductive transmitters for conductivity,
concentration and temperature

The future of industrial sensor technology

Key technology of the 21st century

Now that the subject of energy efficiency has reached government level, and global warming and carbon dioxide emissions are being discussed by the different bodies of the UN, everyone – without knowing it – is talking about sensors, and about measurement and control technology. Statistically speaking, temperature is the quantity that is most frequently measured, followed by pressure and linear measurement. With its steady growth and continuing internationalization, JUMO is clearly at the forefront of the technology.

Temperature and pressure

Today, several million temperature sensors are manufactured per year in Fulda. One thing is certain: The future of precise temperature measurement belongs to the

platinum chip temperature sensors. With 30 years of experience in thin-film technology, highly automated manufacturing plants and highly motivated employees, JUMO is one of the most important ma-

nufacturers of RTD temperature probes in the world.

JUMO operates in the broad field of pressure measurement technology principally with two high-quality technologies that

each offer quite specific advantages: Thick-film on ceramic (e.g. MIDAS series) and piezoresistive sensing elements (e.g. pTRANS series). The list of applications for temperature probes and pressure sensors is almost endless.

A few examples: Compressors in refrigerating machines and air conditioning systems are among the major consumers of electricity in building automation and refrigeration technology. For several years, JUMO has been supplying vibration-resistant pressure sensors for these applications to optimize their operation and increase their efficiency. Suitably certified versions are available for applications in utility vehicles, trains and cogeneration units. Special designs in compliance with the EHEDG guidelines for hygienic design are used in the food and beverages industry. Submersible level measurement probes are used to monitor the groundwater level and filling levels in industrial tanks. JUMO's range of products also includes pressure measuring devices for potentially explosive areas.

Water analysis

Water is the oil of the 21st century – even if that sounds strange to Central Europeans. If you have ever turned on a tap in Shanghai or Mumbai, you will know what we are talking about – let alone the drought areas of the world. At JUMO, the path from yesterday's glass thermometers to today's measuring cells for pH value (also made of glass) or for conductivity leads straight to treatment plants for drinking water throughout the world. Sea water desalinization plants, pure and ultrapure water for industrial processes in the pharmaceutical or semiconductor in-

dustry are typical applications for JUMO's analysis measurement technology.

Wireless with integrated power supply

No cables please ... Wiring makes up a large part of the installation costs. In decentralized systems, for retrofitting, in building automation or in mobile measuring systems, wireless measurement networks are an attractive solution. The engineer's dream of a world full of smart dust seems so enticingly easy. However, wireless technology has not yet really arrived in measurement and control technology in the field.

JUMO was the first manufacturer to successfully launch wireless and mobile temperature probes (Wtrans series). In the long term, development is towards larger transmission ranges and integrated power supply. The subject of autonomous sensor technology will keep us occupied for a long time to come.

Simple and reliable

Everyday work with sensor systems and measuring technology requires operating reliability – also enhanced by simplified operation and handling. Sensors are expected to operate long-term without maintenance, adjustment or calibration. In practice, this is achieved by integrated functions such as self-monitoring, drift analysis, and self-diagnosis.

The objective: increased availability and

at the same time reduced costs for the individual measuring point, when calculated for the entire operational life of the system. Maintenance is no longer performed according to a schedule but when required – signaled by the probe of the future itself.

The future of sensor technology

When issues such as efficiency and sustainability become market drivers, the primary development objectives speak for themselves. Sensors have to become highly integrated, easy-to-handle measuring

modules that can be easily interlinked to form a network. It must also be easy to adapt them to the respective appli-

cations. Measuring accuracy and reliability can be further improved by connecting them to ASICs and microprocessors. Smart sensors, intelligent measuring units, can monitor themselves and send status diagnoses to control systems. They send their measured data via networks and can communicate parameters, calibration data and status.

Increased efficiency means more sensor technology but, at the same time, reduced expenditure for each measuring point throughout the entire operating life of the system.

”Our ambition – to further improve what is already good – is the motor for the market success of our products.”

Additional information

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”We pursue trends as partners with our customers and in a network with universities and cluster work groups. In this way, the developers at JUMO are always one step ahead of the field.”

CEO Carsten Juchheim (on the left)

CEO Michael Juchheim (on the right)





High level of safety and reliability, easy to use

Safety temperature limiters and monitors as per DIN EN 14597

The use of the compact and freely configurable STB/STW mounted on a DIN top hat rail allows the early and reliable detection and prevention of hazards that could lead personal injury, environmental damage or destruction of production equipment and goods.

Approvals for a variety of applications

The primary task of safety temperature limiters is to reliably monitor thermal processes and put systems into a safe operating state in the event of a fault. The devices come with approvals as per DIN EN 14597, SIL, PL (performance level), UL and GL, shortening the customer's own approval process. All the necessary values for calculation such as MTTfd, PFD, SSF, DC, λ_{dd} , λ_{du} in FIT, are made available in the usual way.

1oo2D structure for a high degree of process safety and reliability

The exacting requirements of DIN EN 61508 and/or DIN EN 13849 are met by a device concept, the 1oo2D structure of which guarantees the reliable detection of faults,

allowing it to be used for applications subject to the new Machinery Directive 2006 / 42 / EC. During the design of the devices, particular emphasis was given to safety and reliability, but also to ensuring that commissioning was as simple as possible.

LC display with background lighting

The luminous, clearly structured display with text display and background lighting in combination with the keypad ensures fast and simple configuration directly at the device. The clear menu structure allows safe handling of the device, shortening the time required for commissioning. All safety relevant process variables are displayed and the most important functions are represented by simple pictographs. A mini USB connector is provided to allow configuration using a PC or laptop. Light diodes indicate whether the system is functioning perfectly, or if a pre-alarm or limit value alarm has been triggered.

Two-channel design with diagnosis channel

The two measuring inputs with a large number of linearizations can be freely con-

figured for RTD temperature probes and thermocouples, and for current measurement. In the event of a fault, two relay outputs (pre-alarm and limit value alarm) switch the process to a safe operating state. If the limitation function has been triggered, the system can be released again by actuating an internal or external unlock key. Process variables can be transmitted to a recording device, or to a controller or higher-ranking control system via the analog output provided as standard.

Additional features

Password protected access and adjustable level inhibit ensure increased operating reliability and thus enhanced process safety. The following voltage supplies are available: AC 110 ... 240V, -15% / +10%, 48 ... 63 Hz or AC/DC 20 ... 30V, 48 ... 63 Hz.

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INNOVATION

Screw-in and push-in RTD temperature probes for standard applications

A large number of RTD temperature probes with terminal head form B have been successfully used for many years. The existing range has now been extended by the cost-effective series, JUMO Etemp B, for use in temperatures of up to 200°C and 400°C respectively. The built-in measuring insert can be equipped with a Pt100 / Pt1000- sensor in a 2-wire or 4-wire circuit, or with two sensors in a 2-wire circuit.

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NEW

Outdoor RTD temperature probe for the building industry

Temperature measurement – also with regard to energy efficiency – is gaining increasing significance in building services engineering. JUMO has added an outside RTD temperature probe to its range of temperature probes for this industry. The white plastic thermometer case is UV resistant and can be mounted to the wall using easily accessible fastening holes.

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NEW

Compact pressure transmitter for the low-pressure range

The new MIDAS S06 ensures precise measurement and is resistant to environmental influences.

For measuring the pressure conditions in supply air and exhaust air systems, or for monitoring filters or liquid levels in tanks and washing machines, devices are needed that allow precise measurement, are resistant to aggressive media, but are still competitively priced.

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NEW

Sensor for measuring the electrolytic conductivity of pure and ultrapure water

A shorter active measuring electrode allows installation in smaller pipe diameters or specimen volumes. The sensor was designed as per the following specifications: Selection of materials and technical design of the sensor in compliance with the hygienic design guidelines of the EHEDG, adherence to the rules of the ASTM International and the European Pharmacopoeia (Ph. Eur.).

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NEW

Pneumatic retractable fitting for pH electrodes

The retractable fitting 202823 with maintenance-free actuator for fitting 12mm/225mm sensors to tanks and pipes is suitable for applications in which sensors are exposed to exceptional conditions, such as the occurrence of heavy soiling or precipitation, as well as for special process requirements (e.g. sterilizability, hygienic applications).

Additional information

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NEW

New innovative frost protection thermostat

High protection class, state-of-the-art connection technology and frost protection monitoring over a large surface area are the most prominent features of JUMO's new frostTHERM-ATs.

To prevent damage caused by frost, it monitors the temperature of the air flow entering the water-air heater in ventilation and air conditioning systems.

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Customer focus in the area of temperature probes

From the design stage to commissioning

Customer proximity, customer focus – customized special designs are the daily-routine at JUMO. Dr. Gerhard Weißler (Sensor Report) talked to Matthias Nau (JUMO) to find out how this works on a worldwide scale.

Dr. Gerhard Weißler: Mr. Nau, the creativity of the design engineers continues to produce new probe designs. How many special designs have been produced over the years?

Matthias Nau: In Fulda alone, we currently have more than 25,000 different temperature probe versions. And we produce around seven new versions every day. They are not always completely new designs, but variants of existing designs. For example: When a customer is looking for a temperature probe to exactly match his application, we adapt a standard version. Even when it only involves a special thread, a new version is created with its own article number and set of documents.

Dr. Gerhard Weißler: How much does the growth of the company depend on your focus on customer requirements?

Matthias Nau: Customer focus is of key importance, particularly in the area of temperature probes. Our main objective is to ensure complete customer satisfaction. So everything has to be just right. Of course, this allows us to achieve a high level of customer loyalty and ensures that customers frequently involve us with developments in their new projects right from the start. In this way, we can lay the right foundations at the beginning of the design stage. This ensures that the finished product is tailored to the customer's requirements and is optimized for production. This results in a natural price/performance ratio that is transparent for both sides.

Dr. Gerhard Weißler: In which particular areas has JUMO's know-how developed due to this strong engagement in special designs?

Matthias Nau: Oh, in a large number of areas. I'll give you two examples. We have developed application-based casting and sealing techniques to reliably seal temperature probes against water vapor and changes in temperature, which is important for temperature probes used in sterilization and foodstuffs. We have also developed special designs for use on compressors, that is to say, for measuring points on machines that are constantly exposed to strong vibrations. We have developed very special technologies for these applications in order to produce temperature probes that are vibration resistant and reliable, and still meet our cost target. After more than 15 years, this led to an independent product line for temperature measurement on compressors, refrigerating units, trucks and railway technology.

Dr. Gerhard Weißler: How and at which stage do you internally check the

technical and financial feasibility of customer specifications? And what about time constraints?

Matthias Nau: Given our experience of developing 25,000 special designs, we can quickly estimate the feasibility of new variants. All this is done directly by our engineering department. However, unfortunately we do occasionally have customers who, after a small modification at the beginning, keep coming back with new demands until it eventually becomes apparent that it is really going in the direction of a completely new development. Although this is less than ideal, it is controllable. As far as the time factor is concerned, we are always pressured for time when designing variants, as customers want a quotation almost immediately after making an enquiry, and they want short delivery times, irrespective of whether we have to implement new individual parts.

Dr. Gerhard Weißler: How do you share responsibility for a development project with your customers? At what stage do you normally reach an agreement on this?

Matthias Nau: We start discussing the responsibilities with the customer during the design stage. We specify the responsibilities in a joint contract before starting on the development. This also includes, for example, the coordination of qualification tests. The customers often have their own specially adapted tests for their application, so it saves costs and time if they

perform these test steps themselves. Ultimately we look for a win/win position for both parties.

Dr. Gerhard Weißler: Many products require special approvals, for example for vehicle construction or the food industry. How far do your services go for your customers?

Matthias Nau: It goes without saying that we also take care of product approvals, although we cannot ignore the cost side. Approvals often involve a great deal of time and effort for preparation, and the approval procedure itself is expensive. It is decided on a case-by-case basis whether the customer has to bear the total costs or if JUMO will bear part or all of the approval costs. This decision is taken on the basis of whether we can market the approved product ourselves or whether it will remain a purely customer-specific approval.

Dr. Gerhard Weißler: How do you communicate and coordinate with your customers abroad?

Matthias Nau: Well, of course, the experiences there are the same. That is why, many years ago, we founded our own manufacturing plants for temperature probes in China, the US and several other countries. The sensor elements come from our parent company in Fulda, but the temperature probes themselves are constructed and assembled on site as per the

regional conventions and standards. In these countries, customer discussions are the same as in the German-speaking countries – but they are conducted in the respective language of the country, taking the local culture of negotiation into consideration. This makes it easier, more reliable and more effective for everyone.

Dr. Gerhard Weißler: When do you consider a joint development project to have been completed?

Matthias Nau: A development project is completed with the production launch and start of series production. However, in the case of OEM products, the development isn't really completed until the end of production, as meetings are usually held with OEM customers at regular intervals to discuss the current quality level, optimizations, product management (small modifications), and of course new product ideas. Often these discussions form the beginning of concept phases for the subsequent developments. This is an especially positive outcome of our flexibility and customer focus.

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Dr. Gerhard Weißler (on the right), Editor-in-Chief of the trade journal "Sensor Report" and Matthias Nau (Dipl.-Phys.) (on the left), Head of International Sales and Applications in the JUMO division "Temperature Sensor Technology".



Working where others spend their holidays

JUMO sends trainees and student interns abroad – a worthwhile investment...

More than 20 foreign subsidiaries, an export share of over 50 % and an ever increasing importance of global trade: These will enable JUMO to continue to successfully compete in international markets in the future.

Qualified and committed employees play a key role in meeting this challenge, which is why training, in particular, is given such central importance at JUMO. Trainees and student interns may work at one of JUMO's 23 foreign subsidiaries, giving them

the opportunity to become acquainted with the company and the operational processes from a different perspective. Foreign internships also give trainees and student interns additional incentive and promote their identification with the company.

"It is important for our employees, especially our trainees and student interns to learn to think internationally and to recognize the importance of communication between the head office in Fulda and the individual subsidiaries," says managing partner, Carsten Juchheim, who himself

spent some time in the US managing the subsidiary. He hopes these foreign internships will inspire the young people and that they might be able to imagine working for several years in a foreign subsidiary, for example in China or the US, after completing their training or course of study.

Additional information

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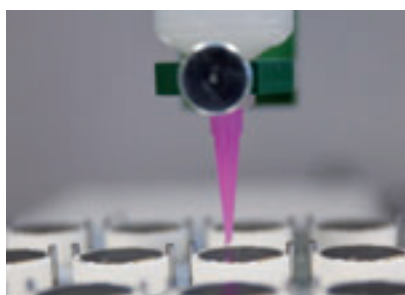
JUMO continuously adds to its product range

Ceramic pressure sensors from our own production

As a reputable manufacturer of sensors, JUMO attaches the greatest importance to both developing and producing the base sensor itself. Its knowledge of sensor technologies and manufacturing processes ensures reliability and promotes autonomy. This makes it easier to respond to special requirements.

The next step in this direction was to extend the product range with ceramic thick-film sensors. These sensors are also in-house developments.

The basis of these sensors is a high quality ceramic body for use in virtually all media. 100 % tests guarantee consistently high overload and bursting values. In place of the normal polymer film, JUMO uses two-



Manufacture of the ceramic pressure sensors

layer tempered glass to cover the bridge circuit. This ensures a high chemical resistance and excellent protection from moisture and condensation. The innovative sensor layout ensures a constant temperature coefficient, which is the prerequisite for excellent temperature compensation over a wide temperature range. The patented signal adjustment guaran-

tees excellent long-term stability.

The pressure sensors are manufactured on state-of-the-art machines in clean rooms and are the result of JUMO's many years of experience in thick- and thin-film technology. The ceramic thick-film sensor is the "heart" of the new pressure transmitter JUMO MIDAS C08. These pressure transmitters are used in compressors, cogeneration units, building services engineering and many other applications.

Additional information

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JUMO subsidiary in Metz

France is a partner of the Hanover trade fair this year

And JUMO has been a competent partner in France for 35 years



JUMO Metz was founded in 1975 as the first subsidiary of JUMO GmbH & Co. KG. The past three and a half decades were characterized by continuous growth and increasing vertical integration – in line with the requirements of the French market. Today, Michel Belliot is responsible for the company's sales, marketing, production and customer services for the French market and beyond.

In 1977, the company set up its own production facilities in Metz for manufacturing temperature probes. Here it is able to meet the specific requirements of the French customers – ensuring customer proximity, high quality and fast delivery. In 2000, JUMO Metz obtained certification as per ATEX Directive 94/9/CE and can therefore produce ATEX approved temperature probes.

The organization of the sales and production departments of the subsidiary have been constantly improved over the last few years. Numerous investments helped to streamline production, shorten response times and reduce manufacturing costs. For instance, the production area for temperature probes was increased by 50%. The area of the mechanical workshop was also enlarged by 30% to

make room for new machines.

Energy costs were reduced by 35% by the installation of a new heating system. All these efforts and investment improved productivity, cut overall costs and strengthened the company's competitive position.

In 2010, the company produced 47000 temperature probes and 24000 thermostats. In addition, it produced 16000 controllers, recording devices and transmitters, specially configured for the requirements of the French customers. JUMO Metz employs a staff of 73 and expects to achieve turnover of around 11.4 million euros in 2011.

The JUMO subsidiary is certified as per ISO 9001 v 2008, ATEX Directive 94/9/CE.

An application was made for a new certification as per Atex i, COFRAC 17025, Marine (VERITAS Rules for the Classification of Steel Ships, Standard EN 60751 and 60584) for a new thermostat.

JUMO Metz is well prepared for the future and intends to remain among the most important and successful subsidiaries of the JUMO group.

Additional information

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Code of Conduct

Mandatory behavior guidelines

JUMO defined a code of conduct applicable to all their employees throughout the world effective as of 23.07.2010. The company has signed the "Code of Conduct for Social Responsibility" that was developed by the "Zentralverband Elektrotechnik- und Elektronikindustrie e. V." (ZVEI) (German Electrical and Electronic Manufacturer's Association) for its members.

The ZVEI's Code of Conduct specifies important basic principles and minimum standards with the objective of supporting all employees who encounter legal and ethical challenges in their everyday work, providing orientation and promoting correct conduct to strengthen the trust and confidence in the performance and integrity of the JUMO company group.



JUMO MAERA S25
level measurement probe,
type 401015

Hydrostatic filling level measurement

“Pressure” as a means to an end

Levels in open water or filling levels of liquids in tanks can be measured with contactless, mechanical (for example with float switches) and pressure measuring devices. In addition to mechanical floats (components for float switches), JUMO is specialized in filling level measurement with pressure measuring devices. You might ask: How can you determine the filling level with pressure measuring devices? And how do you find the right pressure measuring device?

Function

Pressure measuring devices operate according to the principle of hydrostatic filling level measurement. The hydrostatic pressure, the temperature-dependent density and the gravitational acceleration are used for calculating the filling level. The hydrostatic pressure in a liquid is produced by the liquid column above a body (e.g. sensor). The hydrostatic pressure is proportional to the depth of immersion of

a body. To give you an impression of the pressure/level relationship: 10m of water column has a pressure of 0.98bar at a water temperature of 20 °C.

Versatile tendency

The type of pressure measuring device is selected on the basis of the respective measuring task. Level measurement probes, specially developed pressure measuring devices for level sensing, are available

for use in unpressurized tanks or open waters. Differential pressure transmitters type JUMO MIDAS DP10 or JUMO dTRANS p20 DELTA are especially suitable for use in pressurized tanks.

Alternatively, if it is necessary for reasons of hygiene, the filling level of unpressurized tanks can be externally measured using relative pressure transmitters. The JUMO dTRANS p30 without display or the JUMO DELOS SI with LCD display are suit-



JUMO DELOS SI
precision pressure transmitters
with switch contacts and display,
type 405052



JUMO MAERA S28
level measurement probe,
type 404392

Catalog:

<http://br-levelprobes.jumo.info>

Product comparison:

<http://pc-levelprobes.jumo.info>

The distinguishing criteria regarding technical and application-specific aspects are compiled in the form of a table, which helps you to quickly and easily select the suitable product on the basis of the medium to be measured, the medium temperature and the measuring range into consideration.

Versatile and informative

The catalog also informs you which process connection or which cable is suitable for which application and answers the questions:

Which measuring systems are available?
What should be taken into consideration when selecting a measuring range?

How do you calculate the filling level, taking the hydrostatic pressure, temperature-dependent density and gravitational acceleration into consideration?

In addition to examples of applications, the catalog also presents accessories and other interesting products used for displaying or recording the measured data.

able for this application. For aggressive and abrasive media, diaphragm seals made of various materials are available as an interface between the medium to be measured and the pressure transmitter.

Versatile and clear

Once the suitable type of device has been selected, the exact version of the pressure measuring device can be selected on the basis of further criteria such as the mea-

suring range, process connection and the materials coming into contact with the device.

The versatility of the five basic types of the level measurement probe at Jumo is clearly described in the new catalog "Level probes, hydrostatic level and filling level measurement" and in the product comparison.

Conclusion

JUMO offers a versatile range of level measuring devices and provides informative catalog diagrams and tables to enable the customer to determine the correct product for the application.

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"Integrated solutions with synergy effects are becoming increasingly important. For this reason, we at JUMO offer a complete portfolio along the measuring chain for filling level measurement technology."

Sarah Weinmeister (Dipl.-industrial engineering)





JUMO at trade shows 2011

You will find us at the following trade fairs.

We look forward to your visit!

Fairs and trade shows in Germany

HANOVER TRADE FAIR

Industrial Automation

04.04. – 08.04.2011 *Hanover*

WASSER BERLIN

International Trade Fair and
Congress for Water and Wastewater

02.05. – 05.05.2011 *Berlin*

SENSOR+TEST

The Measurement Fair

07.06. – 09.06.2011 *Nuremberg*

THERMPROCESS

International Trade Fair and Symposium
for Thermo Process Technology

28.06. – 02.07.2011 *Düsseldorf*

TECHNOPHARM (+ POWTECH)

International Trade Fair for Life Science
Process Technologies Pharma – Food –
Cosmetics (+ International Trade Fair
for Mechanical Process Technology
and Chemical Analysis)

11.10. – 13.10.2011 *Nuremberg*

BRAU BEVIALE

Trade Fair for Raw Materials – Techno-
logies – Logistics – Marketing; European
Trade Fair for the Beverage Industry

09.11. – 11.11.2011 *Nuremberg*

SPS/IPC/DRIVES

Electric Automation – Systems &
Components – International
Trade Fair and Conference

22.11. – 24.11.2011 *Nuremberg*

Additional information

www.fairs-germany.jumo.info



Fairs and trade shows in other countrys

Additional information

www.fairs-international.jumo.info

Austria

SMART

Fair for Industrial Automation

04.10. – 06.10.2011 Linz

Belgium

INDUMATION

Factory, Process, Infrastructure automation show

18.05. – 20.05.2011 Kortrijk

M+R, Mocon Hydromech

Trade show for Measurement and Control instrumentation in the processing industry

26.10. – 27.10.2011 Brussels

China

IFAT CHINA + EPTEE + CWS 2011

International Trade Fair for Water, Sewage, Refuse Recycling and Natural Energy Sources

05.05. – 07.05.2011 Shanghai

WIND POWER ASIA 2011

Sustainable Solutions for China's Energy Future

22.06. – 24.06.2011 Beijing

France

POLLUTEC

Today's exhibition for tomorrow's solutions to environmental and energy challenges

29.11. – 02.12.2011 Paris

India

Industrial Automation India

International Trade Fair for Process and Production

06.12. – 09.12.2011 Bangalore

Netherlands

Elektrotechniek

Exhibition for installer and industry

03.10. – 07.10.2011 Utrecht

Russia

MIOGE

International Oil & Gas Exhibition

21.06. – 23.06.2011 Moscow

KHIMIA (CHEMIE)

International Exhibition for the Chemical Science and Industry

24.10. – 27.10.2011 Moscow

USA

ACE

Measure water conditioning lines for sewage technology, water supply, Water-supply and distribution, municipal services, disposal

12.06. – 16.06.2011 Chicago

AAMP

American Association of Meat Processors

16.06. – 18.06.2011 Reno

Masthead

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Our sensors need proximity ...
... so do our customers.



Our new products and further developments are always tailored to the individual requirements of our customers. We involve you in all steps, from product development right through to commissioning. Our global network of production sites and technical information centers ensures that you will always find a competent JUMO contact near you.

This also applies, of course, to our sensors. Only the direct proximity of our sensor production to our customer's application results in close cooperation and product excellence.

JUMO. More than sensors + automation.