

02/2013

sensors automation

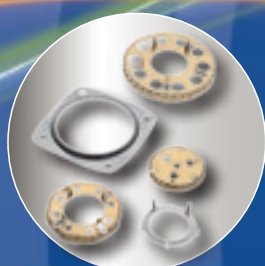
The customer magazine from JUMO

JUMO

The “JUMO” quality brand

65 years of reliable excellence
and professional service

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The metal technology
product division

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Energy-efficient
drying of corrugated
cardboard

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Uniquely versatile.



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air-conditioning



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Do you value efficiency, accuracy, and durability?

Do you believe that quality is the product of experience, innovation, and a focus on practice?

Then you have found your perfect match: JUMO.

There is no need to compromise when it comes to precise and reliable specialist measurement and control technology for your industry.

You can count on 65 years of quality, a high level of commitment, and outstanding industry expertise.

Welcome to JUMO.

*Scan the QR code to find out more
about our industry solutions.*



Dear Reader,

At JUMO, "quality" is not just an empty marketing promise. We make it a reality – and have been doing so for 65 years now. Right at the outset, our company founder **MORITZ KURT JUCHHEIM** recognized that it is not enough to just keep launching new and innovative products on the market. The products also have to meet the highest demands in terms of reliability and durability to be successful in the long term.

Thanks to this awareness, JUMO has always stood for quality made in Germany. Even though today we live up to customer expectations all over the world in the field of measurement and control technology, it is German expertise and quality that is at the heart of each product ranging from temperature sensors to automation solutions. This is one of our most important hallmarks and is also our promise to you as our customer.

To underline how committed we are to this promise, we have made "quality" the motto for this edition of our customer magazine. In addition you will also find all the key information about JUMO innovations and various practical applications for our products.

We hope you enjoy reading our magazine.

JUMO. More than sensors + automation.

Your
Managing Partners,



Bernhard Juchheim



Michael Juchheim



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The “JUMO” quality brand

65 years of reliable excellence and professional service

Quality – a big word with rather humble beginnings. In Latin, “qualitas” means no more than “condition”, “state”, or “characteristic”. The word gives no indication of whether a positive or negative characteristic is meant here. Yet, in modern usage, we associate so much with this term. Quality is something solid, reliable, and durable. Something that inspires confidence and that customers will happily pay more for. **Getting quality right is essential.**

For JUMO, quality is anything but a buzzword or a simple sales aid. Quality ensures that it is the customer who comes back to us, and not the goods. Company founder MORITZ KURT JUCHHEIM always took heed of this. In the early years, he always had the final say when it came to quality. The first glass and dial thermometers to be produced were subjected to his critical scrutiny before they were permitted to leave the factory. Today, in a company with over 2,100 employees, 24 international subsidiaries, and an annual turnover of more than 200 million euro, we have to employ considerably more complex mechanisms to guarantee the quality of the products and processes.

Certified quality awareness

This is how our Fulda-based company has built up an end-to-end quality chain for our customers, which can be seen by

the numerous certifications of which we can be proud at JUMO. Along with the established quality standard DIN EN ISO 9001 and environmental standard DIN EN ISO 14001, these also include ATEX certifications for use of devices in potentially explosive areas, and seals of approval for production of pressure measurement devices. Certification according to ISO 50001 (energy management) is planned as our next step. AEO certification marks JUMO as a particularly reliable and trustworthy economic operator with corresponding benefits when it comes to customs clearance. We have also recently gained certification as an officially recognized “Known Consignor” for air freight. This means that shipped items no longer have to undergo complex individual X-raying or inspection with devices to detect explosives. This distinction is evidence of the quality of the entire JUMO logistics process.

Development

JUMO draws on quality right from the start. The development department is a little like the brains of the Corporate Group and is – in the truest sense – a center of innovation. The research and development work that is done here is well above the average for a company of our size. The aim, and the result, of this development process is the production of reliable high-tech products that are used all over the world.

Purchasing

For a medium-sized enterprise, JUMO has an impressive vertical range of manufacture. Nevertheless, certain product components do still have to be additionally purchased. In doing this, we use a two-stage application process to verify the suitability of key suppliers. Suppliers must safeguard the supply chain with separate logistics concepts and accept



a zero-error principle. In return, they are closely integrated into product development.

Production

Above all else, it is the quality of employees that guarantees the product reliability. At

JUMO we meet our requirements for skilled workers almost independently through training, which also remains an ongoing process. In addition, a comprehensive management system covers all areas from development and production through to customer service. Each product division has its own department for quality assurance.

The initial sample testing area, materials area, and testing laboratory area take on a particularly important role here. These areas regularly calculate mechanical specifications, conduct metallographic and high-resolution topographic structural examinations, and test various IP and ESD protection types.

JUMO has its own testing laboratory cer-

tified by the German accreditation body (DAkkS), which is used for calibration

of RTD temperature probes and thermocouples, data loggers, dry block calibrators, and direct-readout electronic thermometers. JUMO is also a

government-approved testing agency for heat measurement devices. Customers from the field of heat meters in particular have placed their trust in these quality-assurance measures for many years.

Service and support

JUMO products are reliable and are characterized by a long operating life. However, if support is needed during startup, we provide an expert after-sales service and comprehensive support. This starts with a skilled team on a telephone hotline and a configuration service, it continues with an in-house repair service. Spare parts are available for up to 15 years in some cases and can be dispatched within 24 hours. Customers

wishing to increase process quality in their companies or who seek to optimize plants can benefit from subject-specific knowledge transfer in JUMO seminars.

Quality as a hallmark

Since the company was founded in 1948, it has been JUMO's declared aim not to bring the cheapest product to the market, but to always produce the best. Customer satisfaction is always the top priority and when it comes to quality, the current managing partners BERNHARD and MICHAEL JUCHHEIM are still guided by the principles of the company founder. And this will continue to be the case in the future!

*Quality requires experience.
And we have plenty of that.*

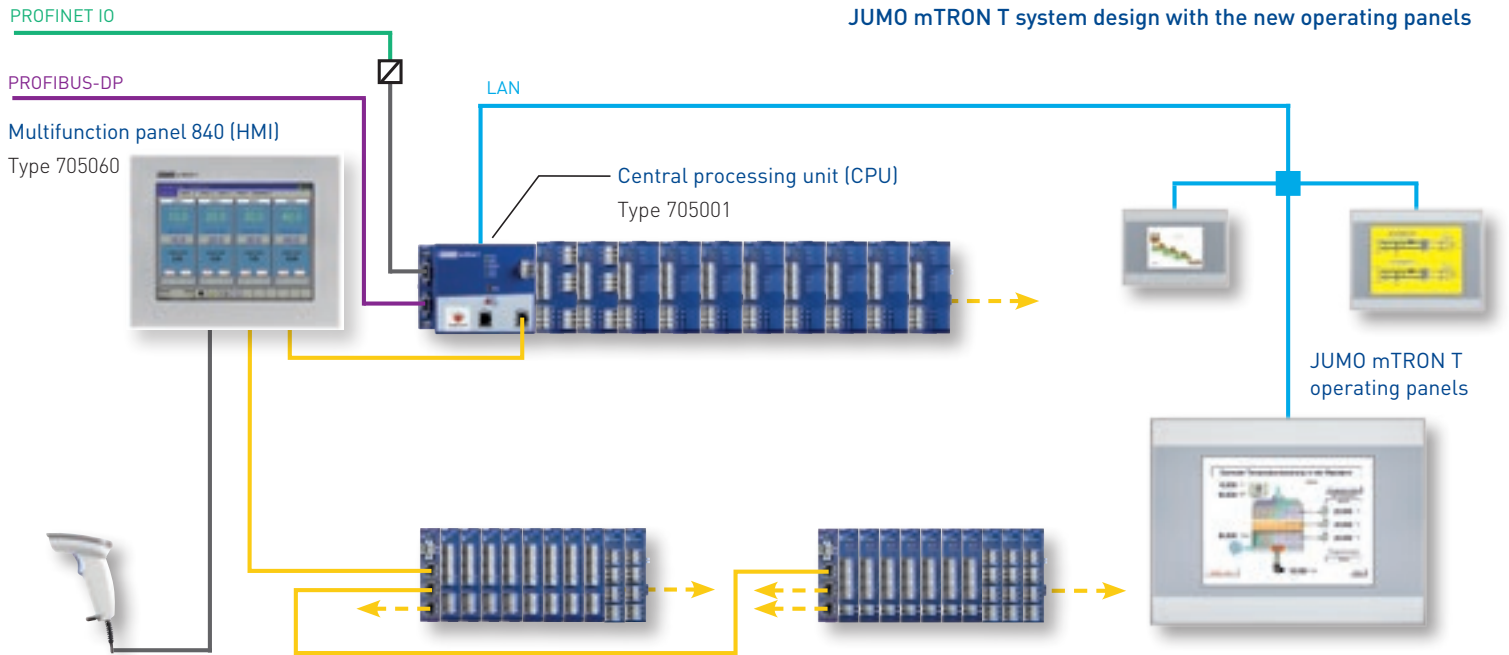
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“The quality of products and services is gaining importance as a factor that sets you apart from the competition, which is why it is the top priority at JUMO – from development through to the after-sales service.”

Dipl.-Ing. BERNHARD JUCHHEIM (left),
Dipl.-Kfm. MICHAEL JUCHHEIM (right)
Managing Partners





New operating panels with CODESYS V3

From 3.5 " to 15 " with direct access to PLC variables

The JUMO mTRON T scalable measurement, control, and automation system has successfully established itself in a wide range of industries and countries. A great variety of applications have since been achieved with the system. Feedback from the market is continually incorporated into further development of the product to make the system even more flexible and to enable an even better response to users' requirements.

Users have provided a great deal of useful information from their perspective, particularly regarding the human-machine interface. We have already been able to implement one suggestion: in the future it will be possible to connect additional operating panels with touchscreens and CODESYS V3.5 SP3 ("long runner") to the JUMO mTRON T central processing unit (type 705001).

In the basic version, the JUMO mTRON T provides a multifunction panel 840 (type 705060) with an 8.4" TFT-touchscreen. The multifunction panel includes a user administration with access to parameter and configuration data for the overall system. Furthermore, the panel includes predefined screen masks for service, controller, program generator, and recording functions (including batch reporting). The panel also has customer-specific process screens.

The new operating panels have diagonal screen dimensions of 3.5" to 15". They feature CODESYS PLC as well as target and web visualization, which use specific process screens. To facilitate easier distinction to the multifunction panel 840, these CODESYS HMIs are referred to as JUMO mTRON T operating panels.

Up to four operating panels can be connected to a JUMO mTRON T central pro-

cessing unit by means of CODESYS project design. This solution offers the benefit of direct access to the PLC variables of the JUMO mTRON T via CODESYS data server with this type of connection. Furthermore, no costs are incurred for external PC programming software for each work station.

The JUMO mTRON T operating panels and their versatile application options are being showcased at this year's SPS/IPC/Drives in Nuremberg, Germany. The options they provide for networking and communication with other systems/devices via Modbus RTU, Modbus TCP, PROFIBUS-DP, PROFINET IO, OPC servers, and web servers will also be presented.

Additional information

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INNOVATION**Enhanced functions for JUMO bimetal switches save time and money**

Bimetal switches from JUMO are used in a wide range of applications such as cooling or heating circuits, compressors, and engines. The switches are now even better suited to applications in compact plants. The switching element is located in the heating process itself and can be combined with a temperature sensor. This enables temperature to be measured and switched at a process connection. This combination is ideal for installation in inaccessible locations and in small plants.

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**INNOVATION****New seal system for JUMO temperature probes for use in sterilizers**

A new and improved seal system has been developed for the STEAMtemp push-in RTD temperature probe. The new seal between the protection fitting and cable features a heat-shrink tube made from highly robust materials, which is welded to both parts to provide a full seal and relieve strain. This setup reduces the mechanical stress on the measuring insert, which has a positive impact on accuracy, long-term stability, and service life. Aside from sterilizers, further application options can be found in apparatus engineering, laboratories, and more.

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**INNOVATION****Compact and reliable: the JUMO eTRON M100 two-channel microstat**

Any application that requires temperatures to be monitored with multiple limit values can make use of the JUMO eTRON M100. With the option of up to four relay outputs, its compact design type, and extensive functionality, the electronic two-channel microstat is an ideal addition to the successful JUMO eTRON series. The device is designed as standard for panel installation in its 76 mm x 36 mm format. A bracket is supplied as an accessory for mounting on a DIN rail in control cabinets.

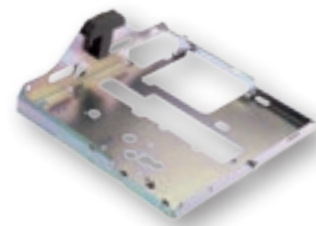
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The metal technology product division



A recipe for success with state-of-the-art technology

One of JUMO's hallmarks is a large vertical range of manufacture. As a result, as many product parts as possible are produced at the Fulda site itself. This guarantees consistently high standards of quality and excellent flexibility in the production processes. Special customer requests or small series are therefore easy to implement.

A good example of this vertical range of manufacture can be seen in the metal technology product division. With around 100 employees this division offers an end-to-end service ranging from design consulting and testing of materials

through to series production. The parts are used in JUMO products but also go out to customers all over Germany. Regular investment means that the technical equipment is always state of the art. Combined with many years of experience, this makes the product division an expert service provider and system supplier for a wide range of industries. Its strengths are particularly evident in small and medium-scale series with high demands for accuracy. For example, floats for liquid filling level measurement can be produced in various forms with variable diameters and wall thicknesses. In the area of flexible sheet metal forming,

state-of-the-art technology comes into use in the form of a laser cutting plant or punch/laser combination machine, which, for example, enables further processes to be performed on sheets in addition to punching and cutting. Other processing steps such as laser engraving, bending, or thread forming can also be performed on the plant. The parts produced can be connected with mounting and jointing work as well as with all common welding procedures. Final surface processing completes the full service.

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Energy-efficient drying of corrugated cardboard

JUMO SCR power controllers turn up the heat

In recent years, corrugated cardboard has gone from being purely a packaging material to become an important medium for advertising. This transformation has not only seen product boxes being given increasingly elaborate designs and printing. Sales displays made from corrugated cardboard have also become a central element in the marketing mix of many companies.

The “boom” in corrugated cardboard has been facilitated by technical advances in printing technology. Direct printing on corrugated cardboard is a relatively new process. As with any printing process, drying the printing ink is a crucial step. Drying equipment can be used to prevent poor ink coverage, discoloration of any used coating, marks on the print image, or scratches. Printing machines can also operate at higher speeds and therefore more effectively if the inks are dried by

machine. In principle, air or infrared radiation can be used for drying.

DUO-Technik GmbH – based in Angersbach (Hesse, Germany) – has been developing and distributing drying systems for direct printing on corrugated cardboard, including infrared dryers, since 1989. As the drying process with these devices is controlled in up to 40 different zones, it is important that the electrical power used for drying can be adjusted accurately, quickly, and in a reproducible manner. DUO-Technik GmbH uses SCR power controllers from JUMO to achieve this power control in its drying plants.

The principle

Air/infrared dryers use a combination of electrical air drying and optimized infrared drying. First, air is blown in a blowing area at speeds of up to 60m/s. Due to its high speed, the flow of air picks up the water in the ink on the sheet of

corrugated cardboard and removes it. In the subsequent suction area, the humid air is sucked out of the dryer environment. In the actual drying area, carbon emitters (medium-wave emitters) are used. The infrared radiation vaporizes any water left in the ink (*see schematic diagram*).

Highest demands on measurement technology

In the drying process for corrugated cardboard it is particularly important that the cardboard is heated as evenly as possible. The energy supplied must therefore be kept in a defined range with extremely tight tolerances over a certain period. This is the only way to achieve greater quality and better material characteristics. The job of the JUMO SCR power controllers is to control the infrared emitters so that the drying process can be controlled with as much precision as possible. This also allows setting the

carbon emitters to exactly the wave length that is required to achieve optimum absorption of the remaining moisture. The highly accurate control has the positive side-effect of enabling the process temperature to be kept as low as possible. This protects the materials in the printing machine and minimizes any fire hazard. Various working widths can be achieved through activation of individual infrared emitters. The SCR power controllers enable convenient activation and deactivation of individual heaters. To ensure consistent quality in the drying process, partial load fault detection is also used. This is primarily used to enable quick detection of a change or even failure in the supplied power in a plant.

As the power controllers control a large number of zones, handling needs to be as simple as possible. JUMO power controllers can offer a further advantage here with the integrated Teach-In function and the option of copying this to other zones. This simplifies startup considerably. The process only needs to be performed once for one zone. The taught-in "good status" or normal values can then simply be transferred to the other zones with ease. If a load fault then occurs in one zone and a deviation

above or below the set limit value occurs, the plant operator receives a direct message on the display. This signaling can also be performed by a fault signal relay.

The Teach-In process enables simple startup and guarantees consistent quality.

Summary

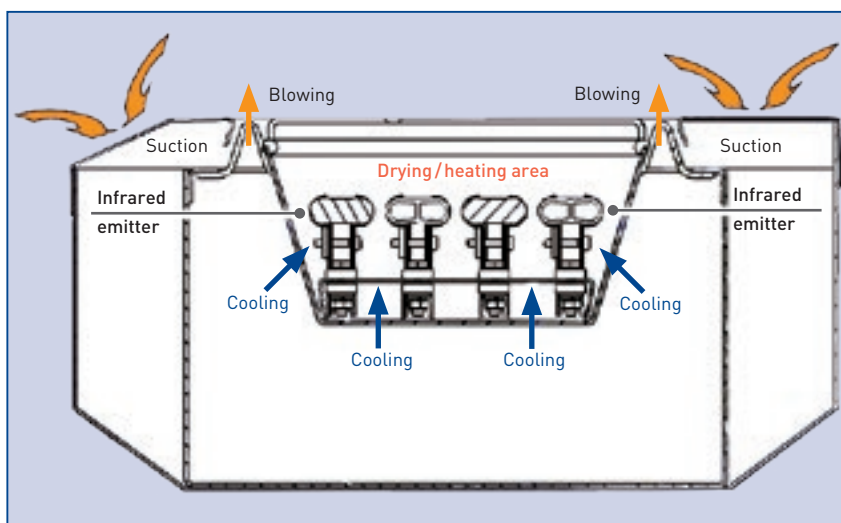
The challenges faced by a manufacturer of complex corrugated cardboard drying plants are enormous. Above all, the heating systems used must meet the highest requirements for energy efficiency and emission

limitation. In addition, they have to provide consistently high production quality and increased throughput rates while at the same having reduced maintenance needs. SCR power controllers from JUMO are reliable and central elements that can be used to meet these expectations.



JUMO TYA 201
Single-phase
power controller
Type 709061

Used with the kind permission of DUO-Technik GmbH, Angersbach

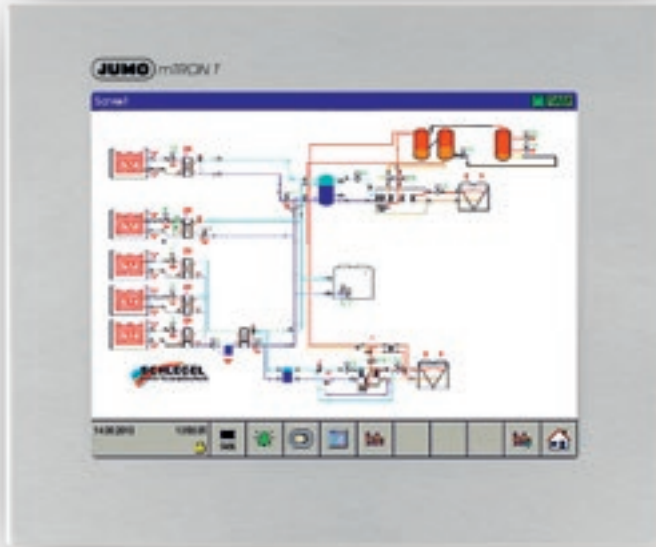


Schematic diagram of the air/infrared dryer



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JUMO mTRON T

Multifunction panel 840 with structured process screen of the application

Type 705060



Professional and sustainable aluminum finishing

Full flexibility with the JUMO mTRON T scalable measurement, control, and automation system

The automation system from JUMO is already used in a large number of industries. The varied areas of application are a clear sign of the system's flexibility. Due to this flexibility the applications of the JUMO mTRON T include production processes for industrial furnace construction, mechanical engineering, and the food and beverages industry. The system also demonstrates all its strengths in surface finishing of metals.

The anodizing process

Aluminum is a light and stable material that is used in many products. One drawback, however, is that untreated aluminum oxidizes due to reaction with the oxygen in the air or the effects of weather. One option for protecting the material from this corrosion is the process of anodizing. Here, an electrochemical process transforms the surface of the aluminum into a thick and very hard oxide layer. The processed aluminum is very hard, corrosion-resistant, and non-conductive of electricity – and it can be produced in various colors. A special variant of this surface technology is hard anodizing.

This process uses extremely high currents of several thousand amperes which produces significantly thicker and harder layers than those in normal anodizing. DIENER & RAPP GmbH & Co. KG in Villingen-Schwenningen, Germany has specialized in this process.

The finishing process itself takes place in acid immersion baths and uses the chemical process of electrolysis. The challenge in hard anodizing is the generation of heat in these acid baths due to the high currents. However, as the temperature is a key influencing variable for the process results, efficiently controlled cooling of the acid baths becomes very important. DIENER & RAPP uses

special cooling baths from the Balingen-based company Karl Schlegel GmbH. This innovative specialist in cooling and air-conditioning planned the entire custom plant and carried out the job as a turnkey project.

The "cool" solution

As a central measurement and control unit JUMO mTRON T controls, regulates, and records all cooling processes. There are many reasons why this system was chosen. With previous solutions a large number of different measurement, control, and display units were housed in the control cabinets.

The JUMO mTRON T system meant



DIENER & RAPP's acid immersion baths



A simple solution for automation with the JUMO mTRON T

Used with the kind permission of DIENER & RAPP GmbH & Co. KG, Villingen-Schwenningen

that cabling work could be significantly reduced during installation. The individual modules of the system are simple to mount and the Plug and Play design makes them particularly easy to service. In addition, complex cutting work at the control cabinet door is no longer necessary as the plant is now operated via a single display rather than several panel controllers/panel display units. All this saves time, reduces cost, and makes handling much easier.

Versatile application options

With the multifunction panel 840, all process data can now be centrally accessed. There is no longer any need to compare a large number of display units. The setup program enables convenient plant configuration and parameterization. Customers are also won over by another special feature of the JUMO system: control takes place on a process screen specifically created for this particular application. The entire process can be viewed on a single screen with a clear visual structure.

This also displays significantly more

information – such as the exact output level of individual control valves – in a clear format. With the help of the touchscreen, the entire plant can be operated with much greater ease. In addition to visualization, the multifunction panel also permits convenient handling of controllers and program generators. On top of this, it offers user-dependent access to parameter and configuration data for the overall system. The re-

Extensive process expertise brought together in a high-performance complete solution.

recording function of a fully fledged paperless recorder is implemented as a special feature as well. This means tamper-proof recording of the individual measured values and data. The entire application is recorded in its own project file, which greatly simplifies project administration and version maintenance. Last but not least, the JUMO mTRON T offers remote maintenance with the help of an integrated web server.

Energy efficiency

With regard to the ErP 2015 energy directive, the planning and implement-

ation by Karl Schlegel GmbH has enabled the anodizing firm DIENER & RAPP to reaffirm its role as a pioneer. Excess thermal energy is used at DIENER & RAPP to heat the building and the process water. In the cold winter months, "free cooling" is also used.

Thanks to its flexibility, the JUMO system scores top marks in all of these monitoring and control tasks. In choosing the JUMO mTRON T, both Karl Schlegel GmbH and DIENER & RAPP GmbH & Co. KG have selected a cost-effective, user-friendly, and modern application solution. Karl Schlegel GmbH has been using high-quality and efficient products from JUMO since 1972.

Additional information

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JUMO welcomes visitors from around the world

Employees from 24 subsidiaries find out about product innovations in Fulda

As part of the ISM (International Sales Meeting) around 100 employees from all the international subsidiaries of JUMO GmbH & Co. KG met in Fulda to find out about the latest product innovations from the specialist for industrial sensor and automation technology.

The ISM started three years ago with 18 participants. This year, we were able to welcome more than five times that number. The longest journey was made by the employees from the Chinese subsidiary in Dalian, who traveled over 8,000 kilometers. In addition, participants had also made the trip to the conference center in Fulda from India, the USA, and the United Arab Emirates. "JUMO is becoming increasingly international. Last year, we established our 24th subsidiary in Canada," explains BERNHARD JUCHHEIM, Managing Partner of the JUMO Corporate Group. He states that it is therefore vital for international employees to be given the chance once a year to learn about

the JUMO product innovations and to get to know their colleagues from all over the world. "We are developing into an international production network with different locations focusing on different aspects. This enables us to continually improve our response to individual, country-specific customer requests," continues his son MICHAEL JUCHHEIM,

adding that JUMO's export rate of close to 54 percent already puts the company ahead of the industry average and there is, above all, still enormous market potential in the newly industrializing countries. He states that JUMO will also be able to profit further from the growing trend of automation in the coming years.

New management for JUMO in Hungary



LÁSZLÓ FARKAS (41) has been the new Managing Director of JUMO's Hungarian subsidiary in Budapest since January 21, 2013.

LÁSZLÓ FARKAS studied electrical engineering and automation at the University of Miskolc and, what's more, he is also a specialist translator of German. Following his studies he worked in companies in the automotive and automation industry, in medical engineering, and building systems.



Congratulations!

ОТ ДУШЬ ПОЗДРАВЛЯЮ

20 years of JUMO in Russia

This year, the JUMO location in Moscow can look back on a 20-year history. The branch was established in 1993. In those days, just four employees were responsible for all of Russia and covered an area that is almost 50 times the size of Germany.

The Russian market developed so well in the years that followed that temperature probe production was launched there

in 2006. This shortened delivery times considerably and meant that customer-specific requests could be given greater consideration. The team has since grown to 47 employees.

For the future JUMO has identified a great deal of further growth potential on the Russian market. With proven quality, expert advice, and quick service, customer relationships are set to expand further.

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JUMO is on the move in Turkey and the USA

Subsidiaries continue to grow

JUMO opened the new premises of the subsidiary in Istanbul at a ceremony in June. The strong growth in Turkey resulted in a lack of space so that relocation was necessary.

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The employees in the branch now have an office and warehouse space of around 600 square meters. The Turkish market holds particular interest for JUMO as it still holds great market potential in the areas of power engineering and water supply. JUMO is making an important contribution to clean drinking water and purified wastewater with products for liquid analysis. In the energy sector, our products are being used in such areas as temperature and pressure measurement.



The American JUMO team have also moved from Canastota to East Syracuse.

The subsidiary in New York State was established in 1984 and the location has also been producing temperature probes for the American market since 2005. The premises that it now occupies offers sufficient capacity for the growth of recent years to continue its successful course.

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JUMO invests in a flexible test system for electronic modules

The “Flying Probe Tester” enables individual testing

Electronic modules form the central component of many JUMO products. They are made in their own dedicated department at the Fulda-based specialist in measurement and control technology. The “Electronic Modules” product division is equipped with state-of-the-art technology and also offers its services to customers from a wide range of industries. A new, flexible test system now complements the available choices.

With the “Flying Probe Tester” a customized test program can now be created at the component level for initial series or prototypes. Sample tests in later large-series production can also detect series faults at an early stage and therefore prevent them. Previously, adapters especially produced for the specific module were used. These adapters sometimes had lengthy delivery times. The result here is

that none of the high costs of purchasing and maintaining these adapters apply. A change to the test program can now be used to respond to layout corrections with ease. Until now, this had only been possible through complex adapter changes. The “Flying Probe Tester” is an addition to the JUMO range for electrical testing, which also includes the AOI (automatic optical inspection), the ICT

(in-circuit test), and the FK (function test). This investment has further improved the JUMO “Electronic Modules” product division, making it an effective and modern service provider.

Additional information

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Convincing technology: the “Flying Probe Tester” in action

JUMO at trade fairs 2014

You will find us at the following trade fairs

We look forward to your visit!

Germany

HANNOVER MESSE

Industrial automation
April 7-11 *Hanover*

IFAT ENTSORGA

World's leading trade fair for water, sewage, waste and raw materials management
May 5-9 *Munich*

En+Eff

Trade fair for energy efficiency and AGFW expert dialogue
May 6-8 *Cologne*

VISION PHARMA

Modern processes, innovations and solutions
June 3-5 *Stuttgart*

SENSOR + TEST

The measurement fair
June 3-5 *Nuremberg*

InnoTrans

International trade fair for transport technology, innovative components, vehicles and systems
September 23-26 *Berlin*

SPS/IPC/DRIVES

International exhibition and conference for electronic automation, systems and components
November 25-27 *Nuremberg*

Austria

SMART Automation Austria

International trade fair for industrial automation
May 6-8 *Vienna*

Czech Republic

AMPER

International trade fair of electrotechnics, electronics, automation and communication technologies
March 18-21 *Brno*

France

SEPEM

Trade fair for services, equipment for measurement, control and regulation technology
January 28-30 *Avignon*

CFIA

Exhibition for food processing and packaging machinery
February 11-13 *Rennes*

India

Water Today

Trade fair for water and wastewater
January 20-22 *Chennai*

EVERYTHING ABOUT WATER

International exhibition for water and wastewater management
January 9-11 *New Delhi*

Netherlands

VSK

International trade fair for heating, mechanical, and climate
February 3-7 *Utrecht*

AQUA Nederland Vakbeurs

Trade fair for water resources management, water treatment and water technology
March 18-20 *Gorinchem*

Poland

AUTOMATICON

Trade fair for automation, control, measurement and robotics
March 25-28 *Warsaw*

Slovenia

IFAM

International trade fair for automation, robotics, mechatronics and measurement
January 29-31 *Celje*

South Korea

SEMICON KOREA

Exhibition of electrical and electronics
February 12-14 *Seoul*

Sweden

UNDERHALL

Exhibition and conference for industrial maintenance
March 11-14 *Gothenburg*

United Arab Emirates

WETEX

International trade fair for water, energy technology and environment
April 14-16 *Dubai*

United Kingdom

ACR

Trade fair for air-conditioning and refrigeration technology
January 11-13 *Birmingham*

foodex

Trade show for processing, packaging and logistics
March 24-26 *Birmingham*

USA

AHR EXPO

International exhibition for airconditioning, heating and refrigeration
January 21-23 *New York*

Additional information

www.fairs-international.jumo.info



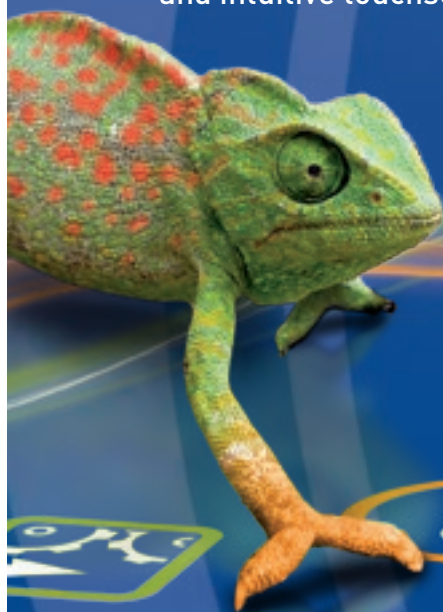
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