

Produkte & Innovationen
Hannover Messe
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Industrial Automation / Factory Automation

Industrial Automation / Factory Automation

Authentication services for data transfer (27)

BTS introduces a service that reportedly makes it possible to compare Protexion scans for the first time from anywhere in the world via the Internet. According to the developers, state-of-the-art encryption technology is used to ensure the security of the data transfer. As is explained, the registration record can either be stored on a high-security server at the company or the customer can send the registration scan and the verification scan via the Internet. In the case of one-to-one comparisons, whereby the objects are serialized, the customer is said to receive the confirmation of authenticity within seconds.

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Hall: , Stand

Automation system for demanding climate conditions (131)

Where most manufacturers guarantee electronics to operate according to specifications in a non-condensing environment, Bachmann Electronic says it is now going one step further. A new process reportedly enables the safe operation of the company's M1 automation system even when condensation is present. The Coldclimate modules are seen as the appropriate solution for all applications in demanding climatic conditions. As is explained, a special preparation of the circuit boards in the modules enables the effects of electro-migration to be prevented during operation after condensation. To this end, a nonporous and transparent polymer film is applied to the module in a vacuum by means of a condensation process from the gaseous phase. The vapor deposition allows this material to reach zones and structures that could not be coated with fluid-based processes. According to the exhibitors, the components used in their modules are specified for an extended operating temperature range from -40°C to +70°C and all connectors are gold-plated for a robust design. As a result, the use of a switchgear cabinet cooling system is said to be unnecessary in most cases. (Photos available)

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Autonomous load sensor for complex helicopter tasks (194)

Sensor Technology will be displaying a helicopter load sensor that marries GPS track guidance with load sensing and other intelligent functions to automatically optimize complex operations such as spraying and multiple random load billing. According to its developers, the Helinav-Loadmaster solution is fully autonomous with its own onboard display and computer and can be swapped from one craft to another within a fleet in seconds. The system is claimed to help commercial helicopter operators maximize the profitability of their flying hours. The system keeps exact records, accurate to the kilogram and meter, so that the customer can be easily invoiced. The exhibitors mention stone transport, crop spraying and water bombing as application examples. In multiple flights, the solution makes sure that the second drop starts exactly where the first finished and can gradually open the release valve in proportion to the weight of remaining spray. The GPS capability can be used to avoid houses, streams, lakes and roads. The sensor is available in ranges from 1.5 to 10 metric tons and sends its information to the helicopter pilot via a radio link working on an unlicensed international frequency.

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Document scanner for safe content authentication (24)

Bayer Technology Services will be presenting a document scanner that enables the storage of documents with all types of content, characters, or even drawings. These are apparently linked in a database to the corresponding Protexion scan of the document. Special algorithms in the software application used also enable automatic checks of whether the document content has been altered. The comparison with the scan also checks the authenticity of the physical document, marking the first time that both the content and the document itself are authenticated. Forgeries or alterations are said to be reliably detected. Applications are seen in customs and shipping papers, whereby the ability to authenticate such documents with 100-percent certainty also makes it more difficult to manipulate supply chains.

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Driverless transport system with modular concept (53)

Kokeisl Industrial Systems, an internationally operating provider of automated logistics systems and systems for order picking and dosing bulk materials, will be highlighting its Picking Robot. The guided vehicle has been conceived for the bulk goods industry. Thanks to the modular building-block system, load pick-ups can be planned and carried out independently of the drive and navigation unit. As a result of the modular technology and the ANT Bluebotics navigation system, the vehicle can apparently survey its surroundings automatically and quickly adapt to sudden changes. According to its developers, it requires no pre-sketched routes and does not need any inductive and magnetic strips or points, reflectors or similar aids to be placed in the building. An integrated laser scanner directs the vehicle to its destination. The robot travels with a maximum speed of 1.5 m/s and an accuracy of +/-10 mm through the production facilities. (Photos available)

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E-CAE system with EDM functions (58)

According to the exhibitors from Aucotec, much of the automation and electrical engineering data corresponds to that of other fields. For instance, one also encounters the motor that is hard-wired with E-CAE with its mechanical arrangement in the 3D CAD of the mechanical system, whereby the associated code of the control software is created in another authoring system. In conventional EDM systems, the management of all these data is done via container or the derived documents. The networking on the element level, which would enable intelligent navigation, is apparently lost in this process. The E-CAE system Engineering Base (EB) from the exhibitors with its database-driven client/server architecture can reportedly manage the data of other involved systems in addition to the ones relevant for electrical engineering. Without the need for any supplementary EDM system, all of the information in a project can thus be combined and made available in the network.

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Electric servo-actuators for high-performance uses (71)

The Isomove actuators from Setec are reportedly constructed for the dimensions of the connecting parts of pneumatic cylinders according to ISO 15552:2004 (ex ISO 6431), which allows complete interchangeability in existing plants and machines. The movement of the extension rod is effected by a ball screw, with different diameters and leads available depending on the nominal bore of the cylinder. The extension rod is supplied with magnets that allow the use of reed sensors normally provided for pneumatic cylinders. The actuators are designed to supply the same axial force and linear speed in both traction (pull) and compression (push) operations. Advantages specified by the Italian company include the possibility to perform high-precision positioning cycles, speed control along the entire stroke, and very slow movements maintaining the maximum nominal force. Key mechanical features are given as aluminum extrusion profiles suitable for electrical axes, T-slots for magnetic sensors, a pneumatic cylinder-like inner sliding system, an inner anti-rotation device, and an inner magnet on the sliding piston for external limit switches. (Photos available)

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Exact angle sensors with automotive qualification (214)

Sensitec point out that their high-precision AA700 magneto-resistive (MR) angle sensors are qualified for automotive applications and are used in the Golf VI steering system. The instrument helps measure the torque applied by the driver when steering by measuring the angle of deflection of a compliant shaft. According to the manufacturers, the sensor's reliability, small dimensions and high precision with a repeatability of better than 0.05° were important criteria to achieve the qualification. Further auto applications of the family are seen in incremental and absolute encoders, in wheel speed sensing, or in crankshaft speed sensing. The company also highlights the large permissible air gap between the sensor and measurement scale, the high accuracy even for weak magnetic field strengths, and the negligible hysteresis. Furthermore, the sensors are said to be tolerant to shaft eccentricity and largely insensitive to interference fields. They can reportedly be applied in an ambient temperature ranging from -40°C to $+150^\circ\text{C}$. The devices are available as bare die or S08-housed components and as sensors for angle measurement at both the shaft end and the shaft circumference. (Photos available)

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Halcon Embedded now runs on the Beagle Board (110)

MVTec Software in Munich reports that it has taken the first performance measurements with the machine vision library Halcon 9.0 running on the Beagle Board using Ångström Linux as operating system. To test the embedded version of the software on the low-cost, fan-less single-board computer, the exhibitors have initially ported Halcon 9.0 and subsequently checked its ability to run with success. Typical image processing algorithms such as filtering or blob analysis can reportedly be performed on the board in a few milliseconds. Even sub-pixel-precise measurements are said to be possible in less than one millisecond. The Beagle Board is described as a cheap, high-performance and laptop-like, low-power, OMAP3-based platform designed by beagleboard.org community members. The OMAP 3530 processor from Texas Instruments is based on an Arm Cortex-A8 core running with 500 MHz. (Photos available)

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Halcon machine vision interface for 3D cameras (109)

MVTec Software and Sick have released a new interface for all Sick 3D cameras to allow smooth integration with the machine vision software Halcon. The new Halcon 9.0 Sick-3D camera interface is billed as a unified interface for the complete series of Sick Ranger and Ruler cameras. The interface reportedly makes the whole functionality of the 3D cameras easily and directly available in the software. As a result, the developers maintain, the entire functionality of the software library is ready to be applied, including operators for morphology, pattern matching, measuring, and 3D vision. The software is claimed to be a very powerful tool for image analysis. The new interface will reportedly make it easy for integrators to use the high-quality 3D and Multiscan data from the 3D cameras to build complete machine vision solutions with the software. (Photos available)

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High-efficiency mechanical worm screw jacks (72)

Setec in Italy will be spotlighting their S (ball-screw) and T (trapezoidal spindle) SEL/SEP screw jack series featuring a high-efficiency ball-screw spindle. The jacks are built for nominal loads from 0.5 to 150 metric tons and are divided into two production ranges, the light series from 0.5 to 10 tons and the heavy series from 5 to 150 tons. The latter range features a wing-like support that combines reinforcement and a high-dissipation surface. The castings are made of spheroid graphite EN-GJS500/7 to provide a better cohesion and micro-molecular constancy with lower crack generation. The housing can hold significant quantities of lubricant to reduce heating. The new worm gears have apparently been designed with optimized modules and pitch diameters and the helix angles and finishing of the worm screws allow the lubricant to penetrate into the flanks of the toothing to enhance efficiency. The bronze used for the worm wheels is charged with self-imbiber phosphorus, with the advantage of eliminating pitting from stick-slip effects and fretting from the vibration friction. These characteristics are said to reduce wear, improve mechanical efficiency, and increase service life. (Photos available)

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High-productivity RFID system for forklift trucks (117)

With their new RFID system Ident-Plus, the radio frequency identification specialists at Ident-Pro promise a boost in productivity and very high transparency in warehousing. As the company points out, most goods today are transported with loading aids and forklifts. The definite identification of the goods and the storage area is effected either manually or with barcode scanning. The new solution serves to eliminate any need for the manual gathering and entering of information by the driver of the forklift truck. All goods and their respective storage places are identified fully automatically, which allows for an unbroken tracking of all items and vehicles at any time. As the developers put it, the system creates a digital copy of a current stock situation in real time. With such a transparent warehouse, cost savings of up to 30 percent can reportedly be achieved thanks to significantly higher productivity and fewer mistakes. The exhibitors add that their logistics support solution can be connected easily to most Enterprise Resource Planning applications. (Photos available)

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Hybrid drive for mobile machines and vehicles (205)

Sensor Technik Wiedemann (STW) supplies high-tech products in the fields of electronic control and force and pressure measurement. The company will be showcasing a hybrid drive for mobile machinery and off-highway vehicles. Power-Mela is said to offer the technology and components needed to realize a diesel-electric or pure electric drive system. The product line covers a power range from 10 to 200 kW. As the German exhibitors stress, their customers can source all the electrical components for a hybrid drive system from one supplier to reduce diesel consumption and pollutant emissions. The available components include electric machines in various power classes, protection systems for the high-voltage circuit, DC/DC converters, DC/AC converters, electric energy storage, and energy management for intelligent operation. The hybrid system is said to provide a high degree of automation and flexibility in machinery and vehicles. Hybrid solutions are not only seen as fulfilling new customer needs, they apparently also enjoy a good position on the market thanks to their significant advantages over conventional machines.

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Medium- and low-voltage transformer soft-starters (83)

The HRVS-TX is described as the ideal soft-starting solution for medium- and low-voltage transformers up to 30 MVA at 15 kV. The sophisticated control ensures the elimination of the magnetizing inrush current, thus eliminating nuisance tripping as well as dynamic shock to the transformer windings. The starter can be supplied as IP31-67, NEMA 1-6X with options such as line and bypass vacuum contactors or circuit breakers, connect switches, main and control protection fuses, and a transformer protection relay. Advantages are seen in the TSR-6 control and protection relay, the heavy-duty design at 50°C ambient temperature, and the reduced inrush current and dynamic shock. In addition, an optional protection package is said to provide many additional features. A transformer heat protection relay is optional and communication is offered by an RS-485 Modbus. The manufacturers further stress the easy setup and operation, the IP 31-standard, higher protection by special order, and the fault indication to each individual fuse. There is a wide 40 to 70 Hz range for fluctuating frequency systems. The device is stand-alone or can be integrated with the company's HRVS-DN soft starters. (Photos available)

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Online analytics for automated process control (34)

The Process Analyzer Technology department of Bayer Technology Services will be highlighting a proven concept based on analyzer modules and containers. According to the exhibitors, the modules solve all problems in waste water and exhaust air measurement technology as well as in many other areas relating to chemical or pharmaceutical production units. For large-scale investment projects, in particular, the future is claimed to belong to integrated modular technology platforms. The technology on offer can apparently be adjusted to a specific process while ensuring a maximum of standardization. (Photos available)

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Process spectrometer system for material analysis (35)

According to Bayer Technology Services, spectroscopic analysis has contributed to establishing methods for the specific analysis of individual components in the process industry during the last ten years. This especially applies to Near-Infrared Spectroscopy (NIR). As the company further points out, spectroscopic analysis is the preferred technology in organic solvents, polymer melts and solids for the monitoring of chemical reactions and processing in real time. The modular Spectro Bay system is said to be easily integrated into a process control concept, such as for controlling distillation columns or optimizing the operation of continuous and batch production units in real time. (Photos available)

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Tracking of metallic objects in production (26)

The Protexxion identification technology for forgery-proof authentication from Bayer Technology Services can be used to scan metallic objects both before and after process steps such as heat treatment or machining. The objects can apparently be tracked through the supply chain or the production line. As is pointed out, information linked to the object, such as test data, quality certificates or certificates of origin, is not lost because it is appended to the respective current Protexxion record for the object in the database. The solution is claimed to be the first technology for identification applications to succeed where previous technologies like RFID or inkjet printing and labeling have failed.

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Warehouse automation with new robot technology (272)

SSI Schäfer reports the first fully automatic picking cell that can be smoothly integrated into existing warehouse architecture. The Robopick is said to achieve up to 2,400 picks per hour and is seen as particularly addressing wholesalers, e-commerce, and mail-order shippers. As the company explains, whereas attempts to make order-picking procedures cheaper and simpler through automated picking systems have been thwarted in the past by a lack of flexibility in the image processing, this problem has now been solved. Thanks to a specially developed machine vision component, the solution does not require information such as product characteristics or positions to be entered into the system. Instead, the 2D/3D image processing unit automatically identifies the products on the trays in less than one second and controls the universal picking robot. The differently shaped and sized articles are then carefully consigned to the respective containers in a matter of seconds. Ten to 20 orders can apparently be handled at the same time. The robot is claimed to be cheaper than a conventional manual workplace with the same performance and reduce the error rate by a factor from ten to 100. (Photos available)

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Digital Factory

Anti-counterfeiting system with barcode or RFID (37)

Tesa Holospot is said to offer brand owners multiple overt and covert security levels for maximum counterfeit protection and traceability with the possibility to identify every single product individually. According to the developers, barcodes, matrix codes, RFID codes and human-readable codes can now be linked with the laser-inscribed holographic labels and can thus be used for track-and-trace and online customer interaction. The serial number stored within the forgery-proof label is also represented as a matrix code symbol or RFID chip for automated reading with standard industrial readers. Codes can either be serialized or encrypted. As is pointed out, for consumer interaction via Internet or mobile phone, the human-readable code is used. (Photos available)

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Cutting-edge security label for mass markets (38)

With its new security label for mass markets, Tesa Scribos says it is expanding on its extensive safety and security concept. As the company explains, conventional security labels identify packages that have been opened improperly as the product passes through the logistics chain. However, they have not typically been able to provide proof of the authenticity or origin of the product until now. Tesa Codeseal is claimed to ensure that item-unique security codes are effectively integrated into a physical verification system. Additional content, such as barcodes used to track merchandise, can also be incorporated into the design. All types of the new system offer the ability to check whether a product is genuine either with or without a database. The exhibitors see their solution as ideally suited to providing counterfeit protection, traceability as well as authenticity verification for each individual product. In addition it can also be used in customer incentive programs. (Photos available)

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Digital Factory

Secure product coding with track and trace (39)

Tesa Trust and Trace combines a physically secure product coding system such as the company's Holospot or Codeseal solutions with leading-edge track and trace systems. This is said to supply logistics and brand protection with detailed and reliable data that can be used to optimize distribution and prevent counterfeiting and trade on the gray market. The concept can be easily integrated into existing logistics processes. As is pointed out, goods tracking systems based on barcodes, 2D matrix codes or RFID technology are simply integrated into brand protection. It is therefore possible to register products on an individual basis during production and associate them with a transport packing code when they are packed and later link the packaging with an RFID pallet label. The advantages for brand protection are seen as self-evident in that all parties can establish the authenticity of a product at any time. (Photos available)

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Strategic consulting for brand protection (36)

The exhibitors from Tesa Scribos point out that all their brand protection technologies are rooted in a full-spectrum consulting concept and can be scaled to meet any strategic requirements. Ranging from protection from counterfeiting and theft to product track and trace capabilities, the company says it uses a multi-stage process to develop safety and security solutions specific to an industry, brand, or sales channel. The process is based on an in-depth analysis of the customer-specific situation, the market segment, and the potential risk. As is explained, this enables the development of an individualized brand protection concept calibrated to the products, production conditions and processes used as well as to the sales and distribution structures of the customer. Support is also provided during the introduction of the protective solution within ongoing day-to-day production and distribution activities. In addition, the success and sustainability of the concept are monitored and assessed on a continuous basis. (Photos available)

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Digital Factory

Virtual Reality and 3D visualization show (80)

As part of the Digital Factory's theme of visualization at the fair, Icido and Deutsche Messe will be presenting Technology Cinema 3D, a special show devoted to Virtual Reality and visualization. The goal is to communicate the value of these areas and initiate new investments. Visitors will apparently see an extensive display of visualization solutions under the motto 'I see, it's real.' The focus will be a black cube containing a large-scale 3D projection that explains the theme, after which interested visitors can immerse themselves interactively in the virtual world. According to the exhibitors, a key difference to similar events lies in the orientation on applications. The examples shown all come from customers and demonstrate how enterprises of all sizes can profit from VR in the fields of Virtual Product Presentation, Virtual Engineering und Prototyping, and Virtual Service und Maintenance. Whereas the fair's organizers see the special event as showing that they always address the latest topics and communicate them in a practically relevant way, the VR solutions experts from Stuttgart stress how the value of the technology will be made apparent for smaller firms as well. (Photos available)

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Industrial Supply

Industrial Supply

Flexible icon display multiplies function access (104)

Liteface is a new flexible display for mechanical and touch-sensitive user interfaces such as control panels, buttons and touchpads. According to Deam, an innovative French start-up in the field of human-machine interfaces (HMI), a hardware interface can display contextual information for the first time, simply by integrating the thin and tiny module into the existing product. This apparently allows an initially static interface such as a machine on/off button to become dynamic and contextual. The button then displays only relevant information in line with the user's context. As is pointed out, the quantity of displayed information can be reduced by five to ten times, with a corresponding reduction of material and weight. The various prototypes are claimed to show how the concept of One Function, One Icon simplifies the user interface, optimizes productivity, and opens up new horizons for product design. Advantages of the display technology are seen in its low power consumption, long life, intuitive interface, the minimized error risk, the easy product customization, and the fact that it is easy to industrialize. The system offers black, white and color options. (Photos available)

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High-performance mixing and dosing system (41)

The DM 404 from Sonderhoff is a two-, three- or four-component, high-performance semi- or fully automatic mixing and dosing system for gasketing, gluing and potting different types of components. It precisely processes liquid and medium to high viscose media such as polyurethane, silicones, epoxy resins and other polymer reaction substances. The advanced sensors and actuators are said to ensure the effective control of any system and any process. Moreover, the automatic logging of all set-up, material and process data enables the tracking of any preceding production sequence. The new design of the system reportedly allows easy and safe operation. The Control II user interface is operated via a touchscreen surface. Moreover, all system and process parameters can be preset and controlled so that the system is able to handle fully automatic production sequences. According to the exhibitors, the use of the new multifunctional Teach-in-Box simplifies the contour programming for the processed parts. The modular hybrid construction facilitates access to the machine for cleaning and maintenance work. (Photos available)

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Low-profile nano-positioning system for microscopy (122)

According to Physik Instrumente, their new PI Nano positioning system is completely optimized in terms of form and performance for applications in optical microscopy. According to the German specialists for high-tech micro- and nano-positioning solutions, the core component of the machine consists of an XY or XYZ nano-positioning system with 20 mm installation height and a large central aperture for transmitted-light microscopy. The drive is equipped with Picma piezo-ceramic actuators and reportedly provides travel ranges up to 200 micrometers with resolutions in the nanometer range for two or three axes with high reliability and durability. It also has its own matched piezo controller with 24-bit USB, Ethernet and RS-232 interfaces and one analog interface. The exhibitors point out that the software supports all conventional imaging systems. A manual XY stage for sample positioning that can be equipped with stepper motor drives can also be added if required. The XY stage can be mounted directly onto the microscope and supports the piezo nano-positioner. (Photos available)

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Hall: , Stand

Miniature hexapod with great freedom of movement (120)

From its parallel kinematics hexapod systems with positioning in six axes and precisions below 1 micrometer, Physik Instrumente (PI) will be displaying their new miniature M-810 hexapod. With a diameter of only 10 cm and a height of 118 mm, it provides travel ranges up to 40 mm in the XY-plane and up to 13 mm in the Z-direction. As the company emphasizes, the high-precision brushless DC motors and high-resolution encoder give each individual strut a positioning resolution of a mere 40 nm. The mini-hexapod is said to reliably position loads up to 5 kg and achieve speeds of up to 10 mm/s. Despite its compact size, the necessary driver electronics have been integrated into the base platform. The control is reportedly fully compatible with all previous hexapod models and is conveniently executed via Ethernet. As with all the company's hexapods, the position can be entered with commands in Cartesian coordinates. As is also pointed out, all six actuators act on a joint platform, which keeps the moved mass low. Moreover, there is no summation of the lateral run-out and tilts of individual axes. The pivot point can be selected as desired via software commands. (Photos available)

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Hall: , Stand

PU foam gasket with high tensile strength (40)

Fermaskin is a new foam gasket developed by Sonderhoff Chemicals, a leading company in FIPFG (Formed-In-Place Foam Gaskets) technology. According to the exhibitors, the two-component polyurethane foam gasket has a flexible, elastomeric and protecting outer skin and can be cost-efficiently processed by low-pressure mixing and dosing units and applying the gasket directly on the component. The outstanding features of the gasket are seen in its very good mechanical quality, for instance a tensile strength of more than 800 kPa. The permeability against other media such as water is said to be close to zero even when the gasket is under little compression. The divided variability of the gasket core on the one hand and the surrounding skin on the other hand is claimed to revolutionize the possible applications for FIPFG products. As is stressed, a gasket has been realized for the first time that offers a high tensile strength and a superlative resetting ability while the absorption of water is marginal. In the future the system will also make it possible to use the gasket as an electrical conductor (EMV). (Photos available)

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Industrial Supply

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Hall: , Stand

Rotation stage with high positioning speeds (119)

The M-660 PI-Line rotation stage from Physik Instrumente (PI) is claimed to open up a new dimension in fast positioning, whether of samples in microscopy and biotechnology or integrated into test systems of mass storage devices. The device reportedly allows positioning speeds of up to two rotations per second. The integrated U-164 linear motors offer a maximum torque of up to 0.3 Nm regardless of the direction of motion, and the stage is designed for a maximum load of 1 kg. As the exhibitors point out, the direct force transmission of the ultrasonic piezo motors onto the ceramic friction ring on the moving platform makes the machine compact and self-locking when at rest. The stage features unlimited travel range, a maximum speed of 720 degrees per second, direct position measurement with 40 μ rad resolution, and a clear aperture with a diameter of 35 mm for flexible usage. Moreover, the precision product is only 15 mm high. The German manufacturers also note that the ceramic direct drive with self-locking has significantly higher positional stability than classical motors. A compact combination with translation stages is said to be possible. (Photos available)

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Hall: , Stand

Industrial Supply

Special composite with unusual material properties (84)

Exhibitors from the SGL Group will be explaining the wide variety of applications opened up by their Siggrasic products. These products reportedly derive their special and unusual properties from carbon-fiber-reinforced silicon carbide or C/SiC, a composite material that combines carbon fibers within a ceramic matrix to maximize material properties. It is manufactured by infiltrating carbon-fiber-reinforced carbon (CC) with silicon, whereby the fiber-reinforcing materials used include short and long carbon fibers, woven carbon fabrics, and felts. By means of an appropriate adjustment of material and process parameters, the product characteristics can be varied and optimized to match the intended use of the component. As the manufacturers point out, the reinforcement used results in a pseudo-ductile fracture behavior of the hard SiC ceramic when subjected to overstressing. This provides for the damage-tolerance behavior of the C/SiC material. The products being highlighted thus help extend the service life of structural units and reduce operating expenses. High-performance ceramics can apparently be manufactured in a wide variety of shapes and complex geometric designs. (Photos available)

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Hall: , Stand

Industrial Automation / Process Automation

Advanced dew-point hygrometer for hazardous areas (63)

Michell Instruments will be introducing the new MDM 300 I.S., a high-speed dew-point hygrometer for repeatable, fast and accurate moisture content measurements in applications such as compressed air, medical gases and natural gas. The lightweight, portable instrument is claimed to allow far more measurements per working hour than any other comparable product and is Atex-certified for use in hazardous areas. Logged data can be downloaded wirelessly via a Bluetooth connection. The manufacturers point to the fast measurements in less than ten minutes for T95 down to -70°C dp and stress the long battery life with more than 48 hours of typical usage between charges. Further specifications include the 1°C dp accuracy, the external 4 to 20 mA device input for dew-point, temperature or pressure transmitters, and the sampling systems to 350 bar. The hygrometer weighs less than 1.5 kg. Application examples are seen in the monitoring of desiccant dryers for compressed air or plastic molding equipment, moisture measurement in high-voltage switchgear quench gas, and moisture measurement in petrochemical refineries. (Photos available)

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Hall: , Stand

Digital module pressure module with Hart protocol (99)

The digital board MSE 61D OEM from Muesen is an intelligent two-wire system for pressure and other measurement applications. The board is suitable for multi-sensors and can be set using a PC. According to the manufacturers, it can be freely programmed via two or three push-buttons. The optional backlight display can continuously rotate through 330°. The manufacturers highlight the wide voltage supply range from 9 to 45 VDC, the linearity and temperature compensation of two to eleven points, the self-learning function with an acceptability of 1.5 mV to 4.8 V signal input, and the very good EMC performance suitable for harsh conditions. The device is seen as suitable for use with various measurement sensors such as pressure sensors, differential sensors, load cells, and magnetic field sensors. (Photos available)

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Hall: , Stand

Enhanced transceivers for temperature measurement (200)

In addition to its SAW-TDK1 (Surface Acoustic Wave Technology Development Kit) introduced last year and its EC-certified wireless SAW reader SEC 001, Sensor now announces the market launch of two new readers, the WRD 004 and WRD 005. The systems are reportedly appropriate for use in explosive atmospheres or irradiated environments with a very high degree of autonomy at temperatures reaching +200°C, whereby in-house R&D efforts are targeting +350°C. The sensors can either be mounted onto an extensive range of rotating and moving machine parts or be deployed in less accessible areas. The latter addition to the wireless SAW reader range is a wideband reader working in the frequency band 440 MHz plus/minus 10 MHz and is reportedly able to interrogate up to twelve different SAW sensors wirelessly with a single antenna. The former model, which also works on the same wide-frequency band, integrates a multiplexing function that allows the interrogation of up to 24 SAW sensors. With its two new products, the French company says it is continuing to exploit the capabilities of the SAW technology and is providing more advanced solutions for an increasing number of applications.

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Hall: , Stand

Fiber optics ratio thermometer for harsh settings (52)

The Optris CT ratio 1M measures temperatures from 700 to 1,800°C in a non-contact manner, which reportedly makes it particularly suitable for applications in the metal and semiconductor industries. The instrument conducts its measurements with two different channels and wavelengths, thus producing two independent electrical signals. By taking the ratio of both signals during the further processing, all disturbances of similar type occurring in both channels are cancelled out. As the exhibitors point out, this makes the temperature measurement insensitive to disturbances, attenuations in the optical channel, and partial shading or movements of the object being measured. The sensor can be used up to 250°C ambient temperature without the need for cooling and the response time is specified as 5 ms. The pyrometer features a temperature display and standard analog outputs. The optical resolution of 80:1 enables measurements from a spot size up from 1.3 mm. As is also pointed out, the ability to switch from two- to single-channel mode allows the user to choose the most appropriate measuring process for the task in hand. (Photos available)

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Hall: , Stand

Field temperature transmitter with Hart protocol (101)

The MST 199 field temperature transmitter with Hart protocol from Muesen Technik has been developed for converting various input signals into a scalable 4 to 20 mA analog output signal, settable via Hart protocol. The instrument features universal settings with Hart protocol for various input signals, two-wire technology with 4 to 20 mA analog outputs, high accuracy throughout the ambient temperature range, galvanic isolation, internal cold junction, and a wide voltage supply range. The manufacturers further emphasize the customer-specific measurement range setting and expanded setup as well as the user-friendly software. An LCD/LED display is apparently an available option. (Photos available)

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Heavy-duty process moisture analyzers (61)

The new Promet I.S. Process Moisture Analyzers are heavy-duty, industrial hygrometer systems for the measurement of process gases and vaporized liquids. They are mostly used on natural gas platforms and terminals, petrochemical plants and industrial gas manufacturing facilities. The instruments combine the latest in Michell Ceramic Moisture Sensing technologies with sample conditioning capabilities to provide a reliable and rugged on-line instrument for both flammable and non-flammable gases. The exhibitors draw special attention to the accurate and reliable measurement, the easy use and complete functionality, the intrinsically safe certification, the simple maintenance with a sensor calibration exchange program, and the flexible configuration options. Specific applications are seen in natural gas production and processing, pipeline drying, transmission pipeline monitoring, the fiscal metering of gas, and gas storage facilities. (Photos available)

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Hall: , Stand

Radio control system for lifting applications (5)

According to the wireless remote control specialists from Tele radio, their Tiger system for cranes, lift tables and other hoisting applications includes abilities such as Duplex, Canopen and Modbus. The systems-stop function and two specifically chosen relays in the receiver are reportedly approved according to SIL 3 EIC 61508. As the exhibitors point out, among the configuration options to choose between, one is the possibility for each user to log in with a specific RFID tag. The system software is said to be easy to modify and adaptable for specific customer needs. The system transmits on 433-434 MHz with 69 selectable channels. The receivers are able to communicate with one or several external units via Modbus, for instance in the case of a weight sensor. The user then receives feedback from the application via the transmitter display, for example information about the weight of the load if a weight sensor has been connected. The handheld transmitters are available with 10x2 functions and display or 12x2 functions without display. The joystick transmitter has two joysticks and two speeds, or two joysticks and four speeds, both with display. (Photos available)

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Hall: , Stand

Real-time I/O system for high control demands (86)

In order to meet demands for shorter I/O communication in real time, Phoenix Contact will be presenting the new Axioline real-time I/O system for control cabinets. Response times of less than 1 ms are said to be achieved thanks to an offset of only 1 μ s per I/O module, whereby the higher-level network exclusively defines the system speed. The I/O system is apparently simple to handle with the PIT direct connector system for wiring. Outlets at both sides of the station ensure transparent cabling in the control cabinet. An integrated I/O tester reads in the station via a USB interface without requiring an additional network or additional control. Moreover, the station can be transparently and clearly labeled using the Bluemark high-speed printer from the manufacturers. According to the manufacturers, the real-time I/O system is distinguished by its robust mechanical design and its electromagnetic compatibility (EMC), its continuous shock resistance, and its wide temperature range. Thanks to its low radiation, it is reportedly certified for residential areas and office environments. The system has IP 20 protection, is open for all Ethernet-based communication protocols, and is optimized for Profinet.

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Hall: , Stand

Safety system with high flexibility and safety (87)

As Phoenix Contact reports, their new safety system with Safety Bridge technology operates independently of safety bus systems such as Interbus Safety and Profisafe and does not require control in the network. The company explains that the safety logic operations are directly processed in the intelligent safety output module. The safe modules can be operated inline at any location in an I/O station of the automation system. With the comprehensive parameterizing options, the eight input or eight output channels can be flexibly adapted to an application. As the company informs, data transfer via the network from the safety input module to the output module is secured using a special protocol, which is driven from the intelligent output module. The standard control only has to copy non-safety I/O data bi-directionally between the input and output modules. Therefore, the control does not handle any safety-oriented tasks. Parameterizing the safety input and output channels and generating the safety logic is realized in a user-friendly manner through the Safeconf software without the need for programming experience. Pre-configured function blocks are available for almost any application.

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Hall: , Stand

Wireless temperature SAW sensors for harsh settings (201)

Senseor announces two unique wireless temperature sensing solutions based on SAW (Surface Acoustic Wave) sensors and specifically designed for demanding industrial applications. Wireless, but also totally passive, the systems are reportedly suitable for use in explosive atmospheres or irradiated environments with a very high degree of autonomy at temperatures reaching +200°C, whereby in-house R&D efforts are targeting +350°C. The sensors can either be mounted onto an extensive range of rotating and moving machine parts or be deployed in less accessible areas. The thermowell-packaged SED-100 wireless temperature probe is especially conceived for wireless temperature measurements inside critical equipment or at the heart of industrial processes and is claimed to comply with established standards in the industry. The company is also launching its new SA-D003 system to monitor surface temperature at the same time. As the exhibitors also point out, the SE-AS10 SAW sensor, which makes up the building block of these two sensing solutions, is also commercially available as a stand-alone device with a temperature range from -20 to +175°C and a measurement precision of plus/minus 2°C.

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Hall: , Stand

Energy / Energy

Energy / Energy

Automated system for 3D pipe cutting and welding (238)

Ket will be explaining the advantages of its automated quality assurance process for the 3D cutting and welding of high-grade, thick-walled, large-dimensioned pipes and tubing. The company developed a CAD/CAM process combining 3D planning and tool-change systems for the fabrication of complex pipe components in 2003, which was further developed in 2008/2009. The current system has six degrees of freedom and enables pipe components of 12 m in length and 1.2 m in diameter with a wall thickness of 60 mm to be three-dimensionally cut with a precision down to a tenth of a millimeter. The components are then welded using Tungsten Inert Gas (TIG) or Metal Active Gas (MAG) procedures. To assure the quality, three innovative, physically independent measurement and control systems are integrated in the system. Firstly, a special camera measures the weld, the result of which influences the pendulum motion of the robot, the speed of the welding object, and the amperage of the welders. Secondly, the protective gas flow rate, the wire feed speed, and the currents and voltages are monitored on the two independent welding machines. Finally, a thermal camera films the thermal image of the weld.

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Hall: , Stand

Combination machine for oil-free biogas compression (64)

The new biogas reciprocating compressor from Haug is said to combine the advantages of the supercharging blower, namely compactness and good controllability, with the benefits of a piston-type compressor, namely high energy efficiency and high final pressures. The exhibitors insist that this combination offers both technical and price advantages for the customer. At the fair, the company will be demonstrating a piston compressor with blower compressor for oil-free biogas compression.

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Energy / Energy

Control electronics for control room simulators (67)

Unitro-Fleischmann reports the first successful installation of high-speed Ethercat technology in a newly developed 19 inch I/O card plug-in system to control a control room simulator in a German nuclear power plant. As is explained, control room simulators are one-to-one replicas of the original control rooms and their purpose is to train operating personnel. All kinds of disturbances and operating states can be simulated by the upstream simulation mainframe computer. As specialists for such systems, the company says it has already installed over ten large systems in Germany and abroad, using LON (Local Operating Network) and Ethercat technology to achieve savings in the number of wires. However, the demand for a scanning rate of 100 Hz is apparently only possible using the latter technology. The new system has over 30,000 switches, signal lamps, and indicators that are detected and processed within 10 ms. According to the exhibitors, the delay between switch command and reaction with response is not even perceptible. According to the operator's specifications, the system is the fastest in the world. (Photos available)

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Hall: , Stand

Controller slashes electricity costs for lighting (143)

The Lighting Energy Controller (LEC) from Power Sines in Israel is an all-in-one system that is said to save up to 38 percent in electricity for indoor and outdoor applications. Its small footprint reportedly allows quick and simple installation on existing lighting circuits without changing a single fixture and provides a fast Return on Investment of 1 to 2.5 years. Built around INV (Induced Negative Voltage) and microprocessor technology, the system enables dynamic control of voltage and energy to lighting circuits. As is explained, it stabilizes voltage level and improves power quality, thus extending the lifetime of lamps and electric equipment. Time-based lighting scenarios are possible thanks to a built-in astronomic clock and flexible programming options. The energy controllers range from 1x10 A (2.5 KVA) up to 3x250 A (175 KVA), are suitable for small to large-scale lighting installations, and are apparently compatible with all lighting systems such as fluorescent, PL, CFL, metal Halide, high-pressure sodium and halogen variants. Applications are seen in retail chains, industrial facilities, hospitals, public buildings, fuel stations, and public lighting. (Photos available)

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Hall: , Stand

Danger alarm systems with Ethernet interface (66)

Unitro-Fleischmann will be displaying the new ME Logic series of danger alarm systems designed as drop indicator relays for fitting in switch panels. The products come in versions with 8, 16 and 24 alarms with LED display. The signaling and supply voltage ranges from 24 to 220 VDC, with a resolution of 1 ms. The devices also have additional floating output contacts and multifunctional programming is possible via mini-USB ports. Possible settings are given as one or two flash rates, first-value/new-value, quiescent/operating current, and response delay. The manufacturers also stress the assignment of output contacts to inputs, the free LED color selection between red, yellow, blue and green, the signal storage in case of power failure, and the LON (Local operating Network) bus interface. A special advantage is seen in the high immunity to interference, making them especially suitable for power plant applications in high-voltage switch cabins in compliance with EN/IEC 61000. A complete innovation is said to be the Ethernet interface with IEC 61850 protocol for direct vertical networking to a control room. The development was sponsored by the German Ministry for Research and Technology. (Photos available)

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Hall: , Stand

Fast dual-channel moisture determination (102)

Dirana is a Dielectric Response Analyzer from Omicron that determines the moisture content of transformers in a quick and easy manner. As is explained, precise knowledge of the moisture content is crucial in assessing the condition of the insulation system in power transformers since high moisture levels reduce transformer life and can lead to premature failures. The instrument is also said to work very well in the condition assessment of bushings, cables, and rotating machines. According to the Austrian exhibitors, the ultra-small and lightweight device analyzes the moisture content of oil-paper insulations on the basis of their dielectric properties. With its extended measurement range from 5 kHz down to 50 μ Hz, the appliance can also determine dry transformers at all temperature levels. In addition, by combining the time and frequency domain methods (PDC and FDS), a very high speed is reportedly obtained that halves the former conventional measurement time. Thus, for example, the measurement needs only 23 minutes up to the stop frequency of 1 mHz. The equipment is also said to be suitable for older transformers since disturbing influences such as aging byproducts are compensated.

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Hall: , Stand

Flooring with mechano-electric energy generation (76)

The exhibitors from Krause Parkett point out that everyone generates kinetic energy that can be used to power small appliances or sensors through the mechanical pressure they apply every day, for instance by walking across floors. The company's Piezoparkett technology aims to provide small-scale users with an electrical energy source that is maintenance-free. It is seen as the ideal supplement for miniature drives or electronic transmission systems sending signals wirelessly from sensors. As is explained, this Energy Harvesting innovation includes a special floor connection system that allows the necessary vertical movement for the integrated piezoelectric material in the floor to react to the pressure applied. In response to the mechanical stress, kinetic energy is transformed into electric energy through the change of polarization density in the material. The resulting electricity is collected and stored in capacitors. The invention generates ecological electricity without additional wiring or the use of galvanic cells and opens up a wide spectrum of applications in the low-voltage range. Specific uses are seen in shopping centers, offices, discotheques, pedestrian zones, and homes. (Photos available)

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Hall: , Stand

Summer/winter changeover timer with LNS plug-in (70)

As part of its MVL series of LON (Local Operating Network) bus components, Unitro-Fleischmann will be highlighting a summer/winter changeover timer with LNS (Lonworks Network Services) plug-in. The timer is supplied in a snap-on housing for installation in a distributor. The device features integrated, networked, wide-range common power supply units of 85 to 265 VAC/VDC, 18 to 50 VAC and 19 to 72 VDC as well as an integrated DCF 77 radio-clock receiver for a one-second time stamp and automatic summer/winter time changeover. It also incorporates sixteen output channels with 800 switching operations with a ten-stage switching priority. Time profiles are specified as day, week, month and year with a personal holiday list. The manufacturers further point up the 2x8 character LC display with time, date, and switch display per channel (scrolling) and the sun angle for louver tracking in sunshade systems. According to the exhibitors, a new advantage of the timer is that it is configurable in Windows XP and Windows 7 via a LON bus connection by means of the LNS plug-in. (Photos available)

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Hall: , Stand

Two drive system variants for offshore wind farms (222)

The offshore wind farm specialists from Bard Engineering will be presenting two innovative drive train concepts they are developing for the new Bard 6.5 offshore wind energy converter. In the one concept, the high-performance Multi Duored gearbox from the German company Winergy replaces the planetary gearbox used up to now. This apparently makes the unit both lighter and more compact, resulting in a more service-friendly and efficient technology. As a result, the energy output of turbines can reportedly be pushed up towards the ten-megawatt level. The aim of the second concept is to provide generators in wind power plants with constant revolutions per minute, thus avoiding the need for a frequency inverter. The exhibitors are cooperating here with Voith Turbo, a specialist in hydrodynamic drives, couplings and braking systems. As is explained, this system is essentially comprised of a superimposing gear unit and a torque converter. The gear unit converts the variable speed of the rotor into a constant speed for the generator. The torque converter ensures that peaks caused by gales or gusts are instantly compensated for. Both concepts are scheduled to be ready for use by mid-2010.

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Hall: , Stand

Wind-propelled compressed air generator (210)

The Italian company Teseo will be unveiling what is billed as a revolution in the world of compressed air distribution. The innovation is a wind-propelled generator with horizontal rotation axis, consisting of a spindle running on ball bearings that supports three aluminum blades and is connected to the shaft of an air compressor. The generator is mounted on top of a high aluminum framework by means of a swiveling arm. As is explained, the generated compressed air is carried through pipes to a reservoir at the base of the supporting framework and is then stored in large pressure vessels. The solution is claimed to offer significant benefits, namely that it uses clean energy from a renewable source at zero cost, that it is based on very simple and cost-effective equipment, that it is independent of wind direction and produces energy even at low wind speeds, that it allows the storage of energy as compressed air in vessels, and that the whole system is made of aluminum. At the fair, the exhibitors will also be introducing recent updates to their range of modular aluminum pipes for the distribution of compressed air, vacuum, nitrogen and other non-hazardous fluids under pressure. (Photos available)

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Hall: , Stand

Research & Technology

Research & Technology

Heterogeneous platform for dynamic reconfiguration (23)

According to the exhibitors from the Chemnitz University of Technology, firmware updates have become an essential service function within the last few years. The board that has been developed and will be displayed at the fair reportedly allows the investigation of algorithms for the dynamic-partial reconfiguration of ASICs. As is explained, the reconfiguration pins of the FPGA are accessible by edge connectors on the printed circuit board. In addition, a microcontroller supervises and controls the reconfiguration. Local memories (SD, Flash or RAM) and external interfaces (USB, Ethernet or i2c) complete the dpR board. (Photos available)

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Real-time supervision of composites (20)

Within the framework of the Fiz-E project conducted by the Chemnitz University of Technology, a system for the real-time supervision of devices made of composites such as rotor blades in wind power stations has been developed. The system detects the acoustic waves generated in the moment of damage using acoustic emission and stitched sensors. The transmission of data to a central processing unit is realized in a wireless manner to minimize the costs for installation and maintenance. The project is funded by the German Ministry for Education and Research (BMBF) within the Innoprofile initiative to promote competence in East German regions and is a cooperative enterprise from several Chemnitz University of Technology chairs. (Photos available)

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MicroNanoTec

Lasers reduce the costs of enhanced coatings (8)

According to Limo, their L3 Limo Line Lasers technology enables the development of customized production processes. The line lasers are based on process-optimized beam shapes and are said to allow the selection of an optimum process window for scaling the system to the industrial production level with maximally efficient operation. Thanks to a variety of processing heads, the devices can be used for any type of materials. In addition to process development, the laser sources are also designed for the improvement of new thin films such as solar cells or semiconductor devices and other applications with a high demand for energy efficiency. The line lasers are optimized for annealing, crystallization and tempering of thin films with high-speed linear scanning processes. The lasers can also be used for rapid thermal inspection and quality assurance. Process development tools can be equipped with 450 to 950 W laser sources that run in a cw (continuous wave) or pulsed mode with a power density of up to several 100 kW/cm² and a typical line length of 10 to 30 mm. To transfer the process into production systems, the laser sources can be scaled up to several meters line length. (Photos available)

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Pipette for fluids in the pico- to nanoliter range (103)

Microdrop Technologies will be introducing a new pipette for fluids in the pico- to nanoliter range that offers good cleaning behavior and fast liquid changes along with some new properties. The AD-K-901 pipette is based on piezo-driven inkjet printing technology. As the company explains, the liquid can either be aspirated through the nozzle tip in the glass capillary or it can be filled via the tubing from the back. The storage volume in the first case is 37.5 µl with a dead volume of about 14 micrometers. The non-contact dispensing of the smallest droplets takes place via the nozzle tip with single droplet volumes of from 20 to 180 picoliters. Another innovation is seen in the use of a transparent body. The filling level can be easily read and the glass capillary inside is extra-long to enable dipping depths into microtiter plates of up to 9.5 mm. The 1 mm nozzle tip diameter apparently even allows it to be dipped into a 384-well plate. A pipette change with contacting, centering and fixing is said to be completed in only a few steps. The new instrument can be integrated in established systems or be used in combination with a positioning unit from the manufacturers. (Photos available)

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Scan system combining two optical concepts (9)

Limo will be highlighting its two-in-one g2T scan system that reportedly combines two different optical concepts, namely the transformation of Gaussian beams into homogeneous top hat profiles with a scan method involving galvo mirrors and a specifically designed f-theta objective lens. The system was constructed for laser-direct materials structuring with single-mode lasers, especially at 532 nm, and for solar cell manufacturing. The Fraunhofer Institute for Solar Energy Systems has succeeded in applying this technology with the ablation of thin films on the basis of 75 nm SiN layer on Si, achieving precise results without any damage to deeper layers. In comparison to Gaussian beams, the exhibitors maintain, the throughput can be increased by using g2T profiles due to smaller pulse-to-pulse spatial overlaps. The process window is said to be enhanced and thermal damages reduced by the homogeneous profile. With a scan field size of 155x155 mm², standard solar cells can be structured cost-effectively in one production run with high throughput. (Photos available)

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CoilTechnica

Time-saving, semi-automatic vertical wire winders (183)

Among its production aids for transformer manufacturers, the German company Dornieden will be showcasing its semi-automatic vertical winding machines for winding limited-power and medium-power transformer coils. The system supplier, which also provides customized plant such as horizontal winding machines, expansion mandrels, coil transport units, unwinders and working platforms, claims a drastic reduction in production times can be achieved with the machines on show. As is also pointed out, the relevant winding data can be easily obtained and adopted from the specific customer engineering sector. Particular advantages highlighted by the manufacturers include the integrated measuring system and the fully automatic control of winders, wire-braking facilities, bending units and adhesive units, for instance for cleat band. Also stressed are the automatic and optimized process control for the stroke and rotary motion of the winding mandrel and the adjustment of the iris diaphragm unit to the relevant winding diameter.

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