

Parts of the future-2

SIMON MARSDEN* CONCLUDES HIS REPORT ON DEVELOPMENTS IN CONTROL SYSTEMS AND MACHINERY COMPONENTS AT LAST SEPTEMBER'S PPMA SHOW.

Sensing

ERWIN SICK

Distance and miniature colour sensor ranges extended

Erwin Sick's DT2 Small distance sensor is capable of detecting 1mm objects over a range of 50 to 300mm. It uses push-to-teach set-up methods and includes M12 plug-in electrical leads.

Typical applications include monitoring packaging material reel diameters.

The company has also extended its W9 range of miniature sensors, which covers contrast, colour and luminescence applications and is a universal range in terms of housing and mounting arrangements.

For example, the W9L laser sensor provides reliable detection of small objects, using a minute light spot of 0.5mm. Other sensors in the W9 family include background suppression, reflective and through-beam sensors, all of which include teach functions to improve set-up.

DME 3000 and DME 5000 sensors are distance measuring devices capable of high accuracy over large distances – up to 500 metres using a reflector – and are designed to operate in harsh environments such as those found in automated deep-freeze warehousing applications.

Erwin Sick has recently acquired Stegmann, an encoder and actuator manufacturing company. Under the

Sick/Stegmann banner customers now have access to an increased range of control components, including Stegmann's Coretech encoder range.

Based on a modular design using common components, this range is aimed at improving product availability by reducing the number of encoder variants and therefore stockholding. Coretech includes useful functions for the machine builder, such as the ability to electronically assign the encoder's zero point to that of the machine control's zero point, while there are also built in communications options using industry standard buses such as Profibus.

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BALLUFF

Sensors now cover contrast, colour and distance

Balluff is now making inroads into the packaging sector with its extended range of sensors and actuators.

For example, the BOS 6K laser diffuse sensor includes improved receiver technology with background suppression, a working range of 110mm, and accuracy in set-up taken care of using "teach-in" calibration facilities.

The new BKT 6K compact contrast sensor also uses laser technology and will reliably detect

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Mini sensor: Balluff's latest M-ZWS ultrasonic sensing device

small-area contrast differences over a distance of 150mm, although the optimum 0.7mm focal point is between 70 and 100mm.

The new BFS-26K is said to be one of the smallest colour sensors available, measuring just 50 x 50 x 17mm. It uses three-colour recognition without needing an external light source and can be programmed remotely or using two teach-in buttons. It has three

digital outputs, each of which can be calibrated using five tolerance levels.

A newly introduced BGL range of through-beam fork sensors is designed to overcome many of the mounting problems associated with using fibre-optic sensors on machines and conveyors. Available in gap sizes from 5mm to 120mm, Balluff claims that the BGL sensors provide improved accuracy over the fibre-optics generally employed in this application.

Precision measurement is possible using the BOD series of laser sensors, an analogue series capable of accurate resolution down to 0.020mm. A visible laser spot together with remote teach and push-button set-point facilities aid set-up and adjustment.

Balluff is also supplying its M-ZWS range of miniature ultrasonic sensors which measure 20 x 32 x 12 mm and, with a narrow beam spread, will resolve down to 0.020mm. Setting the detecting distance and output operation is carried out via a push button.

For safety applications a new range of Line Smart photo-electric guards is now available. These are claimed to be amongst the smallest on the market.

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NATIONAL INSTRUMENTS

Vision systems extend range of measurement instruments

Best known to date for its range of test and measurement instrumentation, National Instruments has

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recently extended its portfolio with machine vision systems, for example the compact NI CVS-1454 system which uses high-speed Firewire to communicate with as many as three cameras.

Firewire has the advantage of being an open communications standard which allows the user to select the most appropriate cameras, in terms of speed and resolution, from a range of different camera suppliers.

With built in PLC functions capable of taking 15 digital inputs and 14 digital outputs, standalone control systems can be realised – for example, external triggering or generating out-of-limits warning signals. RS232 and Ethernet connectivity extend the NI CVS-1454's capabilities to communicate to National Instruments' extensive range of FieldPoint distributed i/o modules.

Programming is carried out using the NI Vision Builder package which provides a point-and-click approach to building up the application. Another option is to use LabView's graphical development package to create more customised vision applications, opening up and integrating the vision system to LabView's extensive suite of machine/process visualisation software, motion control, softPLC functions and so forth.

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SYNATEL INSTRUMENTS

ATEX-approved product range extended with new sensors

Synatel has extended its range of ATEX approved products. These include capacitance sensors that offer a range of 25mm and will switch up to 3A, with input voltages of 12-240V dc and 24-240V ac. Inductive sensors include 24-240V ac/dc supply and an

output rated to 200mA. Maximum operating range is 12mm.

Capacitance level controls incorporate what is called a "power shield" to compensate for material sticking to the probe rod. Probes are available in 100mm, 1000mm and 2000mm solid rod or in 10m wire rope, operating from 110/230V ac and 24V dc and including relay outputs.

Rotamatic speed monitors from Synatel are built in a limit switch style package, capable of accepting 12-240V dc, 24-240V ac, and include relay outputs. Other versions include a 30mm threaded enclosure working on 24-240V AC/DC, capable of switching a maximum of 200mA. They all signal a fault condition at 20 per cent below set running speed.

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Pneumatics

FESTO

Focus on food guides design of products and components

Festo is focusing on the food processing and packaging industry which has far-reaching implications for the company's products and component design.

For example, Festo's Clean Design Valve Island range is designed using smooth profiles and radiused internal corners. Other examples are seen in its new modular air preparation system called the MS Series. This range can be configured to meet specific requirements and is designed to meet HACCP standards for clean air and safety.

Numerous filter modules are available, coarse 40 micron for high flow rates down to super-fine 0.01 micron microfilters, as well as activated carbon filters to eliminate micro particulates and vapours.



Clean Valve Island: Festo's valve terminal for food industry applications

Festo also offers a pre-assemble service, allowing customers to order single part number MS systems that are pre-configured and tested prior to shipment. Additionally, free software is available to assist with configuration and ordering.

Safety comes in the form of a range of isolating valves with padlocks and regulators that can be locked to prevent unauthorised access while slow pressure-build-up valves allow the machine to reach operating pressure in a controlled and safe manner.

MS Series components feature bodies die cast in aluminium, a lighter, more corrosion resistant material that produces more precise castings than zinc, which is traditionally employed. Festo claims this also improves the sensitivity of regulator diaphragms.

Festo has also added two new technology-based training courses to its existing training program. Both the Electrical Drives Competency Training and the Fit for TPM (Total Productivity Maintenance) courses are non-Festo specific and can be tailored to suit customer requirements.

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BOSCH REXROTH

Mini-cylinders now offer up to 15 per cent extra power

Bosch Rexroth has a new range of mini cylinders, including designs

meeting ISO6432 dimension standards that are fully interchangeable with other manufacturers' models.

The OCT range features an eight-sided piston rod giving increased surface area which is claimed to offer as much as 15 per cent more piston force size-for-size over conventional cylinders.

Made in corrosion resistant materials and with non-rotating versions offered as standard, they are soon to be available in diameters of 8-32mm, with single and double acting formats and with low-profile arrangements for attaching mechanical and electronic sensors. Additionally, pre-assembled Quickfix connections simplify design and construction.

CLO3 modular valve block systems are designed for wet environments such as those found in food production. Paying particular attention to hygienic designs and with IP67 and IP67K protection they are said to cope well with aggressive cleaning agents used during high-pressure washdown. These valve blocks are modular and can provide up to 32 valve functions on one manifold.

Also on show were Rexroth's new compact servo drives, the Ecodrive C series, which operate with power ratings from 100 to 750W and include a Sercos interface for inclusion into multi-axis drive systems, although options for Profibus or DeviceNet are also available.

The Visual Motion 9 package is a Windows based tool that provides the user with a graphical programming package to combine motion control functions, i/o ladder editing and servo drive configuration.

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