What's New in PROCESSING

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Compact drive technology: System-integrated and powerful



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Editor:

Debbie Scott

Tel. +27 83 788 5145

Advertising:

Taryn Chantall

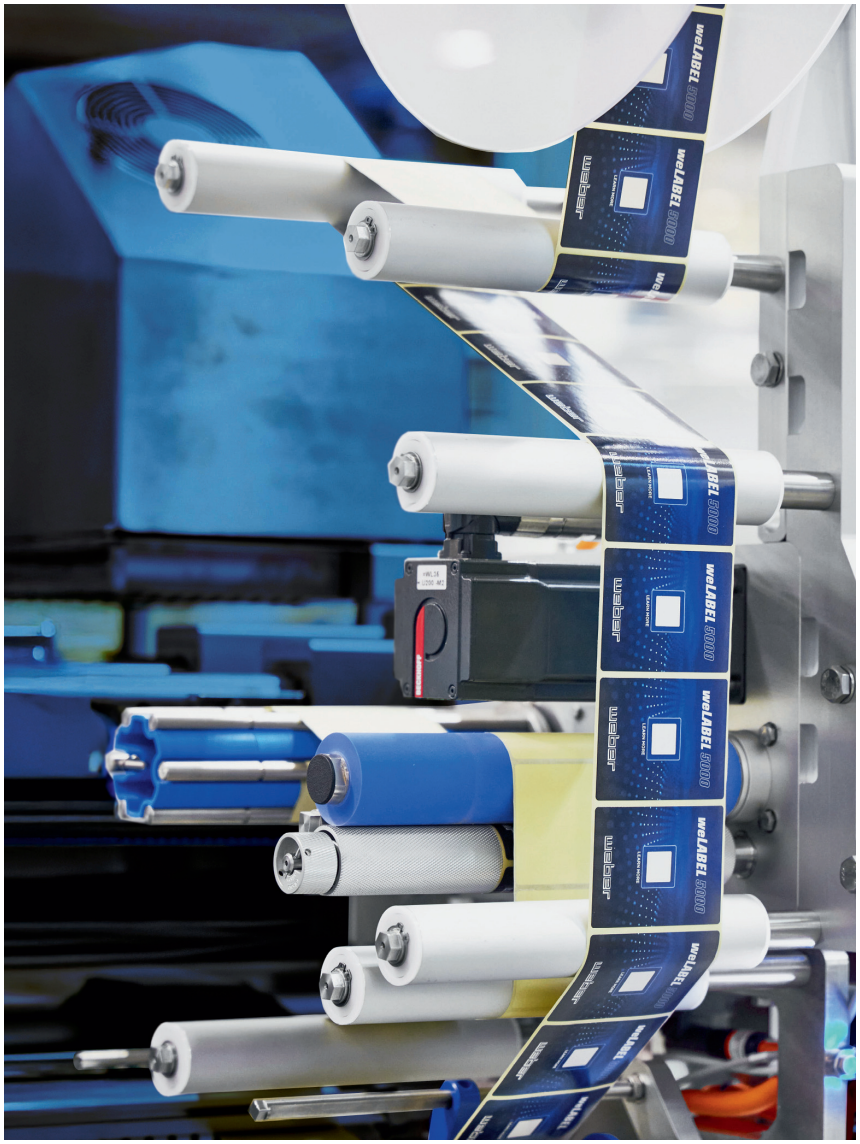
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What's New in Publishing
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On the cover ...

Flexible, Dynamic Labeling

Compact drive technology for a labeler used with



The AM8100 servomotors with One Cable Technology (OCT) can be integrated into the labeling area to save space.

When developing its weLABEL labeler, packaging machine manufacturer Weber Food Technology faced the challenge of finding the most compact possible way of executing dynamic and precise motion sequences.

It successfully achieved this with the help of compact drive technology from Beckhoff, which minimized the installation space, the load that needed to be moved, and the installation requirements.

In 1981, Weber Food Technology was founded in Breidenbach, Germany, and today employs over 2,100 people worldwide. It is a leading system provider for slicing applications in the food processing industry.

As Michael Brandt, Managing Director Technology at Weber, explains: "We develop complete slicing and packaging lines that cover everything from weight-accurate slicing to precisely inserting and packaging sausage, meat, cheese, and vegan substitute products.

Using Servo Technology in a Terminal Format

food packaging machines

"We are dedicated to ensuring our systems meet high quality standards – something that is reflected in our consistent Made in Germany philosophy, for example, and our high vertical range of manufacture, which reaches over 80%."

Martin Grünkemeier, Group Manager for Labeling and Printing, adds: "A good example of the integrated, flexible nature of our solutions is the weLABEL labeler that we have added to our portfolio.

"It can be flexibly adapted to each customer's requirements – not only does it offer a lot of versatility through the possibility of combining four labelers with a Weber thermoforming packaging machine, but it can also be used with packaging machines from third-party suppliers."

Flexible labeling tailored to specific applications

Each labeling process is based on the specific needs of the application. This may mean that one bottom-web and one top-web labeler are enough, or two of each can be used in a fully expanded version for optimized processes. Using four labelers avoids the kinds of machine downtimes caused by replacing an empty labeler roll, for example.

The same goes for high-speed systems, as two weLABEL systems can share their labeling tasks – meaning that the roll can be changed without any downtime and at only a slightly reduced cycle rate.

A weLABEL labeler consists of a dispensing unit (with or without a printer), an applicator, and a longitudinal traversing unit. It provides four axes of movement, excellent positioning accuracy with flexible positioning, high acceleration of up to 60 m/s^2, and – when combined with a thermoforming packaging machine – an output rate of up to 192 labels per minute.

The associated process sequence starts by feeding in the label rolls using reel discs and then, if required, running them through a printer.

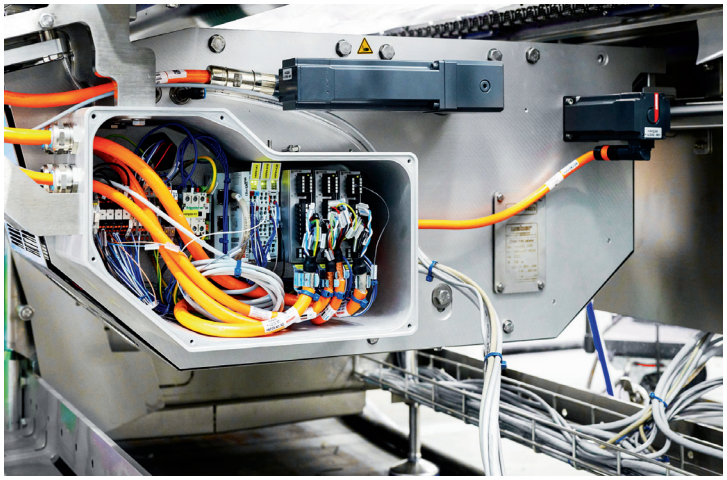
A dispensing edge is then used to separate the labels from their backing material, and the labels are transferred from the dispensing unit to an applicator.

The backing material is wound up and conveyor belts transport the individual labels on the bottom web carrier below the packaging and on the top web carrier above the packaging.

The labels are then pressed onto the packaging using a lifting unit actuated by servomotors.

Grünkemeier adds: "A special feature of the weLABEL is the use of spring pins in the process of pressing on the labels, something that allows the system to accommodate different packaging shapes and sizes – especially since the spring pins can extend by as much as 35 mm.

"This means that there are no issues with labeling uneven surfaces or sloping packaging bases, and the necessary contact pressure is applied at every point."



TCompact control box of a bottom-web labeler with servomotor EtherCAT Terminals from the ELM series and, alongside these, Beckhoff AM8100 servomotors

Compact drive technology saves space and lightens the load

Brandt believes that the modular, highly compact weLABEL design is crucial: "Each labeler has a small control box for the control technology it needs. The compact 48 V drive technology from Beckhoff, with ELM7222 or ELM7231 servomotor EtherCAT Terminals and AM8100 servomotors, is ideal for saving installation space and keeping the load to be moved as small as possible.

"This combination also has a great price-performance ratio and delivers full-scope servo performance, which is essential for the high levels of accuracy we need."

In addition, he says, this highly demanding application can be controlled with four labelers and, therefore, 16 axes, using the C6015 ultra-compact Industrial PC, which measures just 82 x 82 x 40 mm and is equipped with sufficient interfaces.

If demands become even greater in the future, it will be possible to benefit from the extensive, finely scalable Beckhoff IPC portfolio.

The compact design with minimal load makes it possible to move the labeler much more dynamically than a version with conventional drive technology. The maximum permissible speed is also higher as a result of the reduced kinetic energy.

For Grünkemeier, there are three other essential features: firstly, the small control box that moves with the vehicle, avoiding long wiring and complex drag chains.

Secondly, Beckhoff One Cable Technology (OCT) is a useful addition in that it reduces installation space, minimizes installation work, and prevents sources of error as there are fewer connectors and associated openings in the control box.

continues overleaf ...

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Thirdly, there is the outstanding 48 V servo technology – which incorporates not only integrated TwinSAFE Safe Motion, but also the servo properties themselves, which prevent the need for reference runs after label rolls have been changed, for example.

Dirk Bauerfeind, Beckhoff Global Key Account Management, points out another advantage:

"With compact drive technology, the 48 V supply also acts as a DC link via which energy can be transferred between the axes. This significantly minimizes the need for energy output through the braking resistor."

Grünkemeier also confirms this:

"In this labeling application, many movements take place in parallel, which means that energy is simultaneously consumed during accel eration and released during braking, and can be used regeneratively.

"Without this function in the 48 V supply, a significantly larger DC link capacity would be required or we would end up with heat losses of the same magnitude through the braking resistors."

Brandt adds:

"We also benefit from the special epoxy resin coating on the AM8100 servomotors and the corresponding motor/gearbox combinations, as the labelers are also used in areas with strict hygiene requirements and therefore need to be able to withstand cleaning processes."

Flexible control software and hardware

The software and hardware in Beckhoff control and drive technology feature flexibility, modularity, and universality. As a holistic software platform, TwinCAT 3 offers a wide range of functions for efficient labeling processes – from motion control and the event logger for diagnostics to communication interfaces such as the JSON Data Interface.

Added to this, Grünkemeier says, is the system-integrated safety technology: "Direct safety integration allows for a more flexible machine safety concept as well as separate smaller safety projects.

"These are implemented with TwinSAFE and the ELM terminals Safe Limited Position (SLP) and Safe Limited Speed (SLS).

"Used in conjunction with a safety laser, this makes it possible to implement area detection, which ensures the labeler reduces its travel speed when someone enters zone 1 and stops when someone enters zone 2.

"What makes this feature really special, and something unique to the market, is that the system continues to run immediately after the safety zone is exited."

EtherCAT also offers the outstanding flexibility that is required, according to Grünkemeier.

He adds that the free approach to topologies allows for a mixture of star and ring topologies, and the wide range of EtherCAT I/Os is useful for implementing the labeling functions that are required.

A good example he mentions is the EL2258 8-channel digital output terminal, which serves as a cam switch for outputting printer start signals.

Beckhoff Automation
Tel. +27 11 795 2898
info@beckhoff.co.za
https://www.beckhoff.com/

Next Gen Water Quality Testing Just Got Smarter



This multiparameter portable meter with GPS and autonomous logging delivers up to 14 key water quality readings including pH, conductivity (EC), dissolved oxygen (DO), turbidity, temperature, ORP, ionselective, and more measurements all from a single rugged field device.

These parameters are essential for monitoring aquatic environments, wastewater treatment, compliance reporting and industrial process control.

What sets this meter apart:

• GPS tagging of data so every measurement is tied to a precise location and timestamp, critical for environmental surveys and regulatory documentation

• Autonomous logging probe that can collect data and designed to reach various water depths

• Field replaceable sensors and IP68 waterproof design for reliable performance in rivers, lakes, treatment plants and remote sites

This solution helps water professionals whether in environmental monitoring, municipal water, agriculture runoff analysis or industrial compliance collect richer datasets faster and with confidence.

Renee Christoph
Hanna Instruments
Tel. +27 31 701 2711
renee@hanna.co.za
www.hanna.co.za

A-Frame Accessory for Underground Utilities Locator





Fluke's new AF2082 A-Frame is a specialised accessory designed to help technicians quickly locate faults in underground cables.

When used with compatible Fluke underground utility locator systems, the AF2082 enables precise fault detection by measuring voltage gradients in the ground, helping crews pinpoint damaged cables faster and more accurately.

Underground cable faults can lead to costly downtime, service disruptions, and extensive excavation if the fault location is uncertain. The AF2082 simplifies this process by guiding operators directly to the fault point.

By inserting the A-Frame probes into the ground and following the measured signal gradient, technicians can determine the exact location of insulation breakdowns or cable damage—reducing guesswork and minimising unnecessary digging.

The AF2082 is designed for use in demanding field conditions where durability and reliability are essential.

Its rugged construction and ergonomic design make it well-suited for utility technicians, contractors, and maintenance teams working in environments such as power distribution networks, telecommunications infrastructure, industrial facilities, and municipal utilities.

When paired with Fluke underground utility locating systems, the AF2082 becomes part of a comprehensive workflow for locating, tracing, and diagnosing buried utilities.

After a cable or pipe has been traced using a transmitter and receiver, the A-Frame can be used to accurately identify the exact point of a ground fault.

This helps speed up repair operations, improve trouble-shooting efficiency, and reduce disruption to surrounding infrastructure.

The Fluke AF2082 A-Frame helps technicians work faster and more confidently by providing a reliable method for pinpointing underground cable faults.

By enabling precise fault location and reducing excavation time, it helps crews restore service quickly while minimising costs and site disruption.

Key Features of Fluke's new AF2082 A-Frame:

- Quickly pinpoint underground cable faults
- Works with Fluke underground utility locator systems
- Rugged design for demanding field environments
- Easy-to-use A-Frame for accurate fault locating
- Speeds troubleshooting and reduces excavation time

Comtest
Tel. +27 10 595 1821
sales@comtest.co.za
www.comtest.co.za
Facebook: https://bit.ly/3iuk4cg
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Choosing the Right Point of Use Static Eliminator



For more than four decades, EXAIR has produced one of the industry's most comprehensive ranges of static elimination solutions.

As with any airassisted application, correct product selection begins with understanding the size, shape, and intensity of the airflow required.

When a tight, concentrated ionized airstream is needed, four compact pointofuse tools dominate the landscape: the Gen4 Ion Air Gun, Gen4 Ion Air Jet, Intellistat Ion Air Gun, and Intellistat Ion Air Nozzle.

Although the product families differ in construction and intended environment, the initial decision is straightforward—handheld or fixedmount.

The Ion Air Guns provide handheld operation, while the Jets and Nozzles deliver the same ionization performance in a stationary format.

Environmental Considerations: Matching the Tool to the Workspace

Industrial environments vary widely, and static elimination equipment must be matched to the conditions in which it will operate.

Hazardous Locations

Neither the Gen4 nor Intellistat series is suitable for use around flammable materials or gases. Facilities requiring ionization in hazardous zones should consult EXAIR directly for applicationspecific alternatives.

Cleanrooms and Laboratories

For controlled environments, the Intellistat Ion Air Nozzle is the clear leader. With an ISO 146441 Class 5 cleanroom rating and stainlesssteel mounting hardware, it installs quickly and maintains compliance with stringent particulate standards.

General Industrial Use

In rugged production settings, the Gen4 Ion Air Jet offers durability and flexibility. Its 1/8 NPT air connection and 5ft power cable simplify integration, while optional Stay Set Hoses and Magnetic Bases allow precise, repeatable positioning.

Application Demands: Speed, Balance, and Airflow Strength

Once environmental constraints are addressed, the nature of the static problem determines the final selection.

Static Dissipation Speed

For applications where operators risk nuisance shocks, either technology is suitable. The Gen4 Ion Air Jet provides faster dissipation—reducing a 5,000V charge in 0.18 seconds—while the Intellistat Ion Air Nozzle achieves a reduction from 5,000V to 500V in 0.6 seconds.

In situations involving extremely high charge levels and very short cycle times, the Gen4's speed advantage becomes meaningful.

Charge Neutralization Precision

When the goal is to reduce static to the lowest possible level—particularly in electronics handling or assembly—the Intellistat's balanced ion output (±30V offset) reliably brings materials down to 100V or less, regardless of their position on the triboelectric series.

Airflow Strength for Material Manipulation

Some processes require not only ionization but also significant airflow. In a recent Efficiency Lab test for a snackfood manufacturer, the customer needed to blow open gusseted plastic bags and keep them upright for filling.

While the Intellistat Ion Air Nozzle successfully neutralized static and opened the bag, it lacked the force to fully expand the gusset.

The Gen4 Ion Air Jet, with its higher flow and impact, performed the task consistently.

Conclusion

Selecting the correct static eliminator is a matter of aligning three factors: environment, application speed, and required airflow force.

EXAIR's Gen4 and Intellistat families offer targeted solutions for cleanrooms, laboratories, production floors, and highspeed operations—ensuring reliable static control and improved process performance across industries.

Terri Carlson
ETEST
Tel. +27 82 781 8557
terri@etest.co.za

Rugged Tablets

In heavy industry service, rugged mobile devices are no longer just simple screens for data entry. They are essential service tools that connect field inspection, equipment maintenance, work order management, asset tracking, safety checklists, remote support, and production-floor communication.

However, heavy industrial environments can be challenging for ordinary consumer tablets. Dust, water spray, oil, vibration, shock, high-use handling, gloves, outdoor movement, and accidental drops can quickly lead to device failure.

During maintenance windows or emergency repairs, a broken service terminal can delay troubleshooting, cause manual re-entry, reduce equipment uptime, and lower operational efficiency.

Winmate M900AD, M900EK, TG900G7, and TG900AD rugged tablets are designed to support Heavy Industry Service applications with rugged durability, IP-rated water and dust protection, and drop-resistant construction.

They help manufacturing plants, energy facilities, mining operations, utilities, logistics hubs, maintenance teams, and system integrators build reliable digital service workflows for demanding daily operations.

Official specifications include IP66 protection and 5 ft drop resistance for M900AD, IP65 protection and 5 ft drop resistance for M900EK, IP65 protection with MIL-grade drop, shock, and vibration support for TG900G7, and IP65 protection with MIL-grade drop, shock, and vibration support for TG900AD.



Edwin Brown
Vepac Electronics
Tel. +27 11 454 8053 sales@vepac.co.za

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Thermal Imaging Camera with Photo and Video



The PeakTech 5605 A is a versatile thermal imaging camera with a thermal resolution of 120x90 thermal pixels, which makes temperature differences easily recognizable for every user.

Use this new developed device, for example, to detect thermal bridges in thermography, leaks in systems and pipe systems or trace heating pipes in walls and floors.

In electrical engineering, this thermal imaging camera offers the possibility of finding contact problems and contact resistance, e.g. in sub-distribution boards, and thus preventing a fire hazard in good time.

This device also has five different colour palettes of thermal imaging, as well as five overlay modes for video or photo to thermal imaging, so the user can easily locate the source of the error in the real image or one of the image overlays.

Analysis software is stored in the internal memory of the device and can therefore be installed on connected PCs at any time.

Edwin Brown
Vepac Electronics
Tel. +27 11454 8053
sales@vepac.co.za

When Froth Becomes the Problem

Accurate pulp and slurry level measurement is essential for efficient process control, yet froth and foam continue to challenge conventional measurement technologies.

The LTM-2 Slurry Level Probe is specifically designed to accurately measure pulp and slurry levels while ignoring froth, delivering reliable signals in flotation cells, mixing tanks, and sumps.

Trusted by mining operations worldwide, the LTM-2 has proven its performance in:

- Platinum concentrators
- Gold concentrators
- Copper concentrators
- Nickel concentrators
- Many other mineral processing applications

It is also successfully used in:

- Paper mill sumps
- Cooling towers
- Any application where froth interferes with accurate level measurement



Unlike traditional technologies, the LTM-2:

- Has no mechanical moving parts
- Is unaffected by changes in density, conductivity, pressure, or dielectric constant
- Provides reliable, stable measurements under challenging flotation conditions
- Reduces the complexity of slurry level interface monitoring

If you are looking to improve process control with dependable level measurement technology, the LTM-2 is ready to perform.

Raymond Karsten
Instek Control (Pty) Ltd
Tel. +27 12 998 6326
info@instek.co.za
www.instek.co.za

Advancing Coal Process Monitoring





As the mining industry continues to pursue greater efficiency, reliability and process control, advanced measurement technologies are playing an increasingly important role.

At the Electra Mining Expo, Parsum technology will be showcased with particular focus on its applications in coal processing, demonstrating how real-time particle measurement can support improved plant performance.

Parsum´s technology provides continuous, in-process measurement of particle size, enabling operators to monitor material behavior directly within the production process.

For coal applications, this capability can provide valuable insight into particle characteristics and process conditions without the need to rely solely on laboratory sampling.

In demanding coal-processing environments, where consistent product quality and efficient separation are critical, access to real-time data can help operators identify changes in material properties and respond more quickly to process variations.

Continuous monitoring can also support process optimization, helping plants make better-informed decisions around classification, separation and overall material handling.

The Electra Mining Exhibition will highlight the practical potential of Parsum technology for coal operations, bringing together measurement capability and process expertise to address some of the challenges faced by modern processing plants.

By providing greater visibility into what is happening within the process, the technology can help operators move towards more responsive and data-driven plant management.

For visitors involved in coal mining and processing, the demonstration will offer an opportunity to explore how real-time particle measurement can complement existing process-control strategies and contribute to improved operational insight, consistency and efficiency.

MECOSA (Pty) Ltd is your business partner for Parsum and SOPAT in Southern Africa.

Henning Springer
MECOSA (Pty) Ltd
Tel. +27 11 257 6100
measure@mecosa.co.za
www.mecosa.co.za



BMG Achieves GBCSA Net Zero Waste Level 2 Certif



Roland Bontinck, Sustainability Manager at BMG, Group Sustainability Lead for Invicta Holdings Limited and Project Lead for the Net Zero Waste initiative, together with the BMG Sustainability Team and Reece, Invicta's sustainability mascot, celebrate the achievement of GBCSA Net Zero Waste Level 2 Certification.

BMG, a division of Invicta Holdings Limited, has achieved Green Building Council South Africa (GBCSA) Net Zero Waste Level 2 Certification, marking a significant milestone in the company's sustainability journey and demonstrating how practical operational improvements can deliver measurable environmental and commercial outcomes.

The certification recognises BMG's achievement in diverting more than 90% of operational waste from landfill, through a structured programme focused on waste reduction, reuse, recycling and resource recovery.

More importantly, it reflects a broader commitment to embedding sustainability into everyday business operations, rather than treating it as a compliance exercise.

"This certification is the result of years of operational focus, employee commitment and a willingness to challenge the way we have always done things," says Roland Bontinck, Sustainability Manager at BMG and Group Sustainability Lead for Invicta Holdings Limited.

"Too often, sustainability is viewed as a theoretical concept or reporting requirement. Our approach has been different. We have focused on practical implementation, measurable outcomes and creating solutions that benefit both the business and the environment.

"Sustainability should not be something that sits alongside the business, it should become part of how the business operates every day."

The journey began with a simple question: "What are we throwing away, and why?"

By accurately measuring waste streams and analysing everyday operational activities, BMG dentified opportunities to reduce waste generation, recover valuable resources and improve operational efficiency.

Materials previously regarded as waste - including pallets, cardboard, plastics and other recyclable products - became

Clear, Reliable Valve Position Feedback in Robust and Industrial Environments



Festo South Africa
Tel. +27 11 971 5500
sales.za@festo.com

The new limit switch box SRBK is a binary position feedback system made of highly reinforced polymer, with a visual display for manual or automated process systems.

It can be used indoors as well as outdoors under extreme conditions, such as with UV radiation, chemically demanding ambient conditions or temperature fluctuations.

Key features:

- Sturdy, corrosion-resistant design, ideal for use in harsh operating conditions
- Weatherproof housing also for outdoor applications
- Pre-assembled mounting flange adapter for ease of installation
- The trip cams can be easily set without additional tools
- 3D OPEN/CLOSED position indicator
- Mechanical, inductive or magnetic switch variants for virtually all areas of application
- SIL 3 according to IEC 61508

fication Through Practical Sustainability Leadership

valuable resources within a structured circular economy programme.

The initiative has delivered benefits beyond environmental performance.

Through improved resource management, waste reduction and recovery initiatives, BMG has reduced disposal costs, improved operational efficiencies and demonstrated that responsible environmental management and commercial success are complementary objectives.

The certification forms part of BMG's broader Environmental, Social and Governance (ESG) strategy, which focuses on integrating sustainability into business decision-making, operational excellence and long-term value creation.

Net Zero Waste is one of several strategic initiatives supporting BMG's vision of building a more resilient, resource-efficient and responsible business.

"Level 2 certification is an important milestone, but it is not our destination," adds Bontinck. "Continuous improvement is fundamental to sustainability.

"We will continue identifying opportunities to improve resource efficiency, strengthen circular economy principles and further reduce our environmental footprint, while delivering value to our customers, employees, shareholders and the communities we serve."

Representatives from Green Gap, Don't Waste and the Green Building Council South Africa (GBCSA) joined BMG's leadership team in recognising the collaborative effort that made the certification possible.

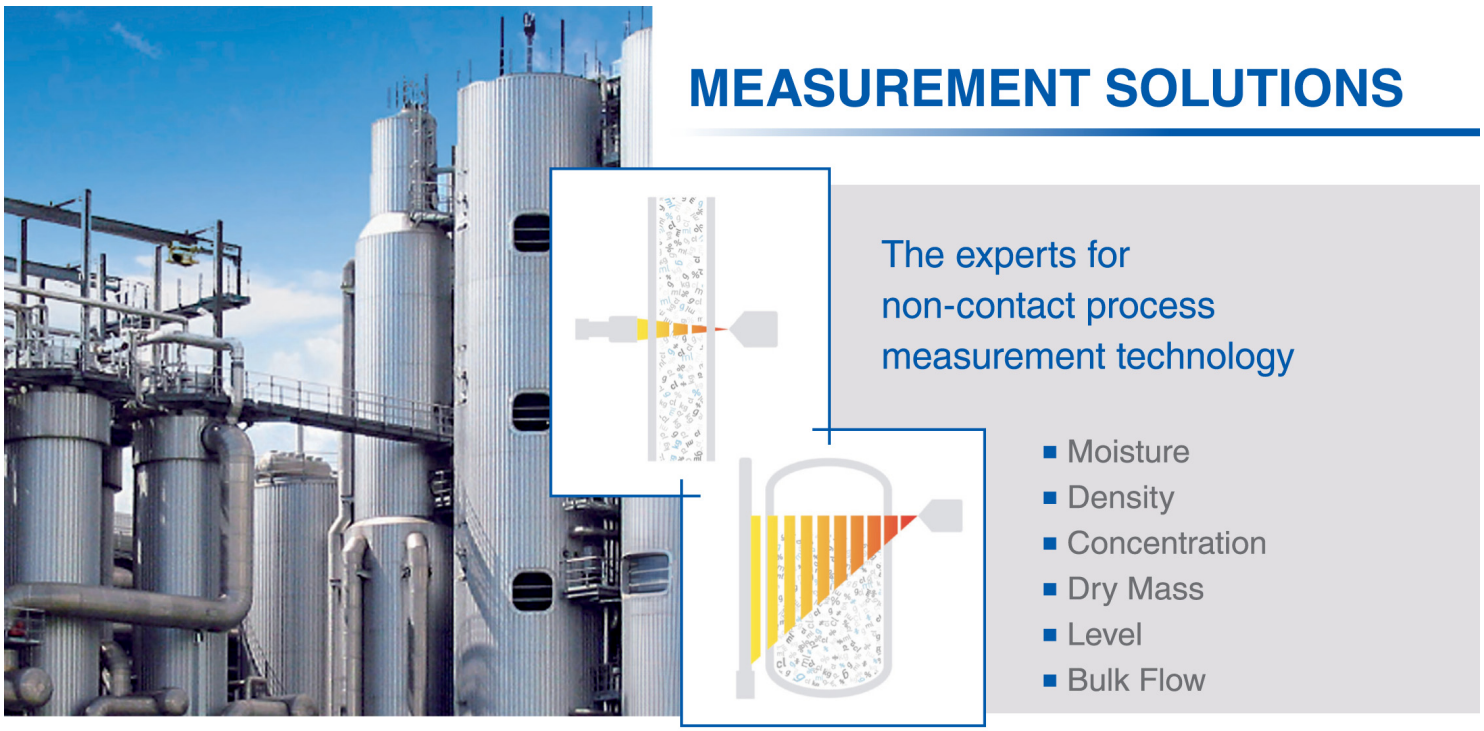
BMG also acknowledged the contribution of its certification partners, whose technical expertise, guidance and collaboration ensured that operational improvements were accurately measured, independently verified and aligned with internationally recognised sustainability standards.

The company further recognised the commitment of its Sustainability Team and employees across the business, whose engagement and willingness to embrace change were instrumental in achieving this milestone.

As a member of Invicta Holdings Limited, BMG is committed to advancing practical sustainability initiatives that create measurable environmental, social and commercial value.

The achievement of GBCSA Net Zero Waste Level 2 Certification demonstrates that strong leadership, operational discipline, employee engagement and continuous improvement can transform sustainability ambitions into measurable business outcomes.

Roland Bontinck
BMG
Tel. +27 82 454 7870
rolandb@bmgworld.net
www.bmgworld.net



MECOSA
Tel: +27 11 257 6100
measure@mecosa.co.za
www.mecosa.co.za
BERTHOLD

New Drives Launch at Electra Mining Africa 2026



BMG will launch the new Danfoss iC7-Automation Variable Speed Drive (VSD) enclosed range at Electra Mining Africa 2026, marking the local introduction of a drive platform, designed by Danfoss specifically to be intelligent, versatile, future-proof and reliable.

"BMG and Danfoss Drives have enjoyed over a decade of close collaboration since signing a strategic alliance agreement in 2015.

"This formal partnership arrangement strengthened BMG's original distribution agreement for Danfoss VSDs and the soft starter range, which has been in place since 2007," explains Sean McCree, Key Account Lead, BMG.

"Visitors to the BMG stands (J10, J12 and K17) at Electra Mining Africa 2026 will have the opportunity to see new Danfoss iC7-Automation equipment first hand and discuss with BMG and Danfoss local VSD technical specialists in detail, how the product's design requirements (intelligent, versatile, future-proof and reliable) distinguish it.

"BMG has made a significant investment in local stock, with 400 V IP20 iC7-Automation models available up to 710 kW. This strategic stockholding will enable faster delivery, improved project support and reduced lead times for customers in diverse industrial sectors.

"The introduction of the Danfoss iC7-Automation range forms part of BMG's ongoing strategy of introducing advanced automation technologies that improve productivity, energy efficiency and operational reliability in Africa.

"The Danfoss iC7-Automation series has been developed as a VSD platform for demanding industrial applications where performance, uptime and ease of integration are essential.

"This new range has been designed to simplify commissioning, optimise machine performance and provide users with greater operational flexibility throughout the lifecycle of their equipment.

"The portfolio will cover the range of frequency converters: 0.37 – 710 kW, air-cooled system modules: 200 – 2700 kW and free-standing enclosed drives: 200 – 1200 kW (with both 6-pulse and AFE variants) in the voltage range 380-500V. This portfolio will be extended to 525-690V and higher powers in 380-500V in coming months."

A key advantage of the iC7-Automation platform is its ability to adapt easily to changing application requirements.

Enhanced fieldbus flexibility enables rapid switching between industrial communication protocols without requiring additional hardware, helping system designers standardise equipment, while simplifying upgrades and reducing engineering complexity.

This range also incorporates advanced diagnostic and monitoring capabilities that assist maintenance teams in identifying potential issues before they develop into costly failures.

Improved backup and restore functionality, together with enhanced software tools, streamlines commissioning and maintenance procedures, reducing downtime and improving service efficiency.

In addition, safety and system availability have been enhanced through new integrated features designed for modern automated plants. These include advanced safety functions, improved redundancy options and expanded communication capabilities that support reliable operation in critical industrial environments.

Danfoss iC7-Automation drives - designed for compatibility with a wide range of motor technologies - provide users with greater freedom when specifying equipment for new installations or modernisation projects.

Scalable architecture also allows the platform to accommodate future expansion to meet changing production requirements.

BMG's Electronics division will support customers throughout the selection, installation and operation of the new drive range with specialist application engineering, technical advice and after-sales service.

This includes the roll-out of Danfoss Drives DrivePro® 360Live, which is the digital asset management platform for Danfoss Drives.

"Mining operators are under increasing pressure to improve productivity, reduce energy consumption and maximise equipment uptime. With the iC7-Automation platform, Danfoss is delivering a future-ready drive solution that combines high performance, advanced connectivity and built-in cybersecurity.

"Together with our trusted partners, we are helping customers optimise their operations today, while preparing for the evolving demands of tomorrow's mining industry," says Shikantha Naidoo, Danfoss Power Electronics & Drives Country Sales Manager for Sub-Sahara & Africa.

Sean McCree
BMG
Tel. +27 11 620 1546
seanm@bmgworld.net www.bmgworld.net

Comprehensive Mining Solutions



Becker Mining South Africa – part of the global Becker Mining Systems Group ▫ will be showcasing its comprehensive mining solutions at Electra Mining Africa, in Hall 5, Stand A25.

Becker Mining Systems is a leading worldwide supplier of complete energy, automation, communication, transportation and technologies for the mining sector.

The Becker Mining team will highlight the company's commitment to the highest standards of quality, efficiency and safety in mining and general industry. Their extensive mechanical, electrical and electronic product portfolio complies with the most stringent government mining regulations and mining house specifications.

Through interactive videos, Becker Mining will showcase its extensive product portfolio, which includes high-performance, fit-for-purpose communication and safety solutions for underground and surface mining– including Leaky Feeder systems, Wi-Fi networks, tagging and tracking solutions, environmental monitoring equipment and proximity detection systems (PDS).

In addition to communication solutions, Becker also offers intrinsically safe (IS) and flameproof underground electrical reticulation products for safe use in explosive atmospheres.

The range also includes fluid transfer, rigging, rope attachments, steel arch tunnel support and underground transportation systems. All systems are designed to facilitate future upgrades.

On display will be a range of Kito chain hoists and lever hoists, as well as electric hoists, including food-grade models.

These electric chain hoists and manual hoists play a critical role in many industries, including mining, construction, shipbuilding, food and beverage processing, pharmaceutical processing, manufacturing and general industry, as well as in chemical and petrochemical plants and the wind power sector.

Shanice Venter
Becker Mining South Africa
Tel. +27 11 617 6300
info@za.becker-mining.com
www.za.becker-mining.com

1- or 3-Phase Voltage-, Current-, Power- and Energy Meter With Modbus RTU Interface

A precise and fast universal power and net quality meter for applications with high accuracy, the eCap measures voltages, currents, power, power factor, energy, frequency as well as total harmonic distortion (THD) with all harmonics (up to 20th) and allows fully galvanically isolated transmission via the integrated Modbus RTU / RS485 interface.

The required Modbus addresses for the measured values are listed in a separate Modbus register address document available on the website along with the eCap product. A single digital input and two digital outputs can be read and both outputs can be separately written via the Modbus RTU interface.

All communication parameters may be set on the front of the device without any additional software. The status LEDs on the front of the eCap give a convenient indication about the device and communication condition.

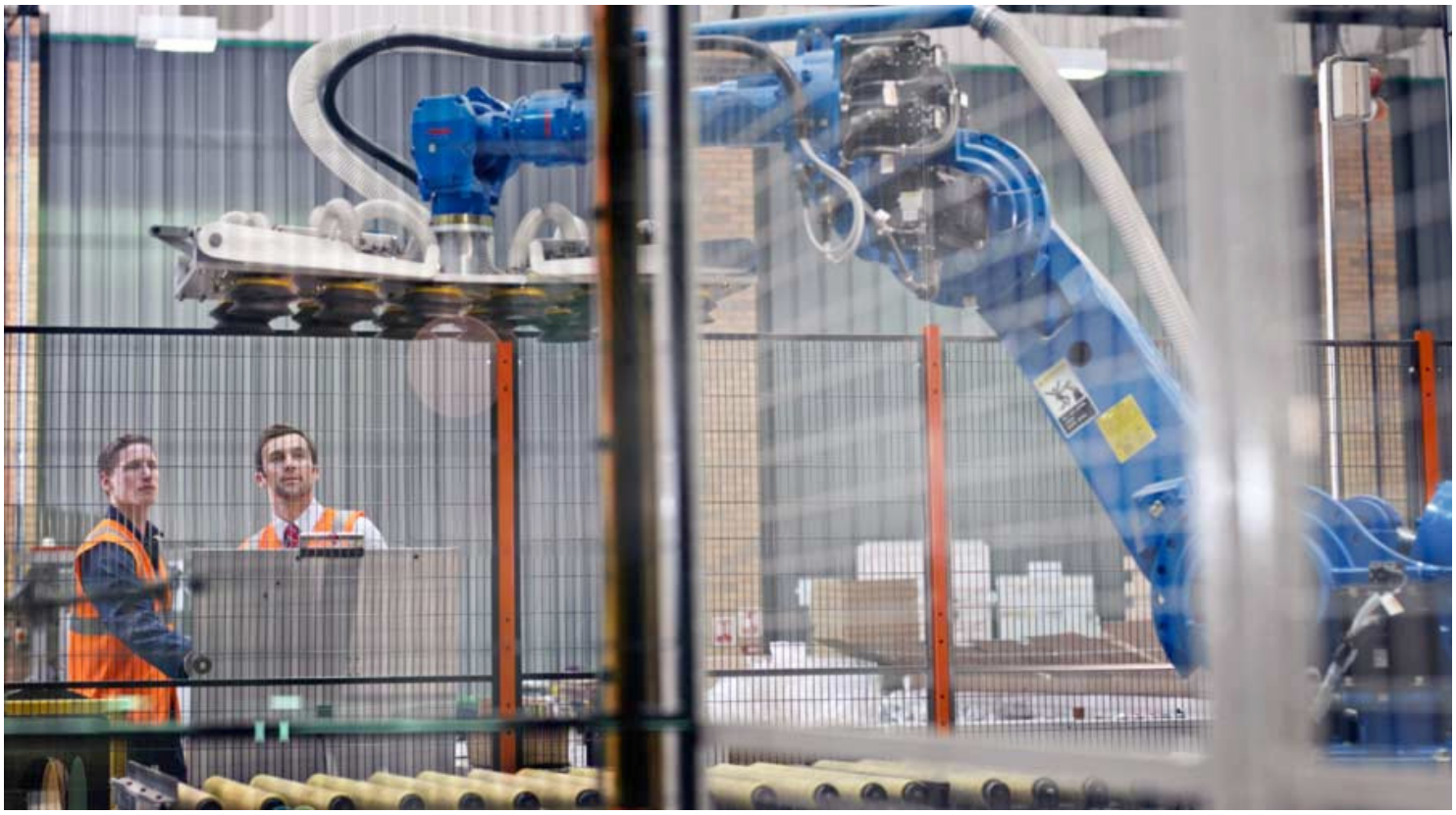
Future firmware updates or pre-configurations of the eCap may be performed by integrated Modbus RTU interface. The 'Tele Modbus Configurator' allows to configure the eCap and display the measured values and the version of the eCap.



Edwin Brown
Vepac Electronics
Tel. +27 11 454 8053 sales@vepac.co.za

How Smart Signalling Can Transform Africa's

By Luthando Makiwane, Marketing Manager Industry Automation at Schneider Electric



Imagine a factory floor where humans and machines communicate in real time; issues flagged instantly, workflows adjusted seamlessly, and downtime reduced to near zero.

This is not a scene from Sci-Fi but the reality unfolding across Africa as manufacturers embrace the next generation of intelligent signalling technologies.

We are seeing diverse industries like automotive plants and food-processing lines using smart tower lights and touch interfaces to improve how workers interact with machines.

Indeed, these systems are becoming essential tools for improving safety, enhancing efficiency, and building globally competitive African industries.

A lesson in history

But, like most things in life, we need to take one step back; signalling certainly has a storied history. From the 1800s to the early 1900s, signalling was manual and included bells, whistles, flags and mechanical indicators – all used to coordinate workers and machines.

For the next forty years (1920-1960), factories had indicator lights, control lights and basic alarms, therefore, relay-based controls systems that allowed machines to automatically signal faults.

However, it was also during this time that we saw the birth of Andon, a visual alert system (typically stackable LED lights in a tower) used in manufacturing to signal problems, needs, or status changes on a production line.

The 1980s ushered in the digital control era which included PLCs (Programmable Logic Controllers) enabled complex automated signalling.

Today and the future

Fast-forward to today and factories are implementing truly extraordinary signalling solutions, such as Schneider Electric's Tower Lights, alongside touch and push buttons, and IIoT-ready control modules, which have all evolved into interactive communication hubs.

Operators can input commands or flag process needs via touch buttons, triggering visual, audible, or tactile responses from tower lights. This creates a closed-loop communication ecosystem where human action and machine feedback continuously inform each other.

Next generation signalling devices are designed for the future.

Their key advantages include:

· Scalable modularity - factories can tailor systems to their needs—adding or adjusting components without major downtime or costly reconfiguration.

· Remote monitoring - supervisors can view machine status from anywhere, supporting multi-site operations and faster incident response.

· Predictive maintenance - built-in diagnostics allow early detection of anomalies, enabling maintenance teams to intervene before breakdowns occur.

Manufacturing Future

· Seamless integration - IIoT-ready devices communicate effortlessly with smart factory platforms, SCADA systems, and cloud-based analytics tools.
· Multi-sensory alerts - visual, audible, and tactile notifications ensure workers receive critical information clearly, even in noisy or low-visibility environments.

Human–machine convergence

Highly intelligent smart signalling is also reliant on human input. It is this integration which is redefining operational performance.

By enabling operators to communicate needs instantly, and machines to respond with clear, actionable alerts, factories are eliminating guesswork.

This closed-loop communication system reduces misunderstandings, accelerates decision-making, and enhances workflow clarity, key requirements for achieving reliable production in fast-paced environments.

The relevance

African manufacturers which adopt intelligent signalling systems will undoubtedly gain a competitive edge.

Predictive maintenance cuts unplanned downtime, advanced visibility boosts product consistency, and connected safety



features help plants meet global safety and sustainability standards, all critical for entering demanding international supply chains.

The bottom line is intelligent, connected communication has become the backbone of highperforming factories, and the question is no longer if African industries should adopt smart signalling, but how quickly they can transition.

Luthando Makiwane
Schneider Electric
Tel. +27 11 254 6400 *luthando.makiwane@schneider-electric.com*
https://www.se.com/za/en/product-subcategory/5010-modular-tower-lights/

Toroidal Electrical Conductivity Sensor

Bass Instruments' Toroidal Electrical Conductivity Sensor is designed for measurements in the chemical industry, food sector, galvanic industry, and industrial wastewater.

The SI315 series is a durable measurement sensor specifically engineered to withstand rigorous measurement procedures.

It is suitable for both inline and immersion applications.

Core Specifications

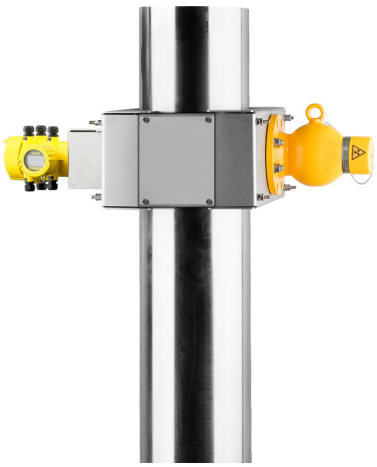
· **Measuring Range:** 0 to 2,000 mS/cm (or up to 20 S depending on configuration)
· **Temperature Sensor:** Built-in RTD Pt100 for automatic temperature compensation
· **Max Temperature:** Up to 80°C (fluid-contact limits vary by body material)
· **Max Pressure:** 3 bar at 25°C
· **Body Materials:** PVDF or PVC/PVC-C for chemical resistance.



Raymond Karsten
Instek Control (Pty) Ltd
Tel. +27 12 998 6326
info@instek.co.za *www.instek.co.za*

From Belt to Balance Sheet - Precision Mass Flow Conveyors





The movement of bulk solids is constant, high volume, and tightly linked to production efficiency. From crushed ore to processed aggregates, materials are typically transported via conveyor belts or screw conveyors, forming the backbone of continuous production.

While this seems pretty straightforward, the real challenge lies in knowing exactly how much material is moving at any given moment.

This is where mass flow measurement becomes essential.

Without accurate throughput data, process control becomes guesswork, and even small deviations can lead to costly inefficiencies, inaccurate billing between production units, or downstream process instability.

In conveyor-based handling systems, the primary measurement task is throughput monitoring.

Operators need a continuous, real-time understanding of how many tonnes per hour are being transported, often at rates reaching up to 10 000 t/h.

The measuring point is typically the conveyor belt itself, where bulk solids are in motion and constantly changing in load profile.

The materials involved can vary widely in particle size, density, and moisture content, and the system must remain reliable across a wide process temperature range, typically from -40 to +60 °C.

This variability places high demands on measurement technology, which must remain stable and accurate regardless of environmental and material fluctuations.

Mining environments add another layer of complexity

Conveyor belts are exposed to heavy dust loads, mechanical vibration, uneven belt tension, and constantly changing material characteristics.

Larger and smaller particles may mix unpredictably, and flow patterns are rarely uniform.

Traditional mechanical weighing systems can struggle under these conditions due to wear, drift, or sensitivity to vibration. As a result, non-contact and robust measurement technologies are increasingly preferred for long-term stability and reduced maintenance requirements.

A proven solution for these demanding applications is the use of radiometric mass flow measurement systems such as the WEIGHTRAC 31.

This instrument is designed specifically for the continuous measurement of bulk solids on conveyor belts.

Its frame-based construction allows for straightforward retrofit installation onto existing conveyor systems, making it particularly attractive for upgrades or plant optimisation projects without major mechanical modification.

The WEIGHTRAC 31 operates using a radiation-based principle, enabling it to measure mass flow without physical contact with the material or conveyor.

Because the measurement is non-contact, the system is largely unaffected by dust, dirt build-up, or material abrasion.

Measurement in Mining

This is a significant advantage in mining environments, where conventional systems can degrade quickly under harsh conditions.

The WEIGHTRAC 31 provides accurate, repeatable throughput measurement even when belt loading is uneven or when vibration levels are high.

Its wear-free operation also reduces the need for regular maintenance interventions, which in turn improves overall plant availability and reduces operational downtime.

A key component of any radiometric measurement system is the radiation source holder, such as the VEGASOURCE 81.

This unit is responsible for safely housing and directing the gamma emitter used in the measurement process.

It ensures that radiation is emitted in a controlled and defined direction towards the measurement path, while effectively shielding the surrounding environment in all other directions.

This design is critical for operational safety and regulatory compliance in industrial settings.

The VEGASOURCE 81 is engineered for high operational reliability, featuring pneumatic actuation of the source holder for safe handling and control.

Its compact design allows for simple installation even in constrained spaces, while its shielding efficiency helps minimise the need for extensive controlled areas around the installation.

This makes it well suited for integration into existing conveyor systems where space and access may be limited.

Employed together, WEIGHTRAC 31 and VEGASOURCE 81 provide a robust solution for continuous mass flow measurement in mining applications.

The benefits to operators are significant. Reliable measurement is maintained despite vibration, belt tension changes, and harsh environmental conditions.

Accurate throughput data enables precise accounting of bulk material flows between production units, supporting both operational transparency and financial control.

At the same time, the system's low-maintenance, wear-free design reduces lifecycle costs and simplifies long-term operation.

In a sector where every tonne counts, dependable mass flow measurement is not just a technical advantage, it is a fundamental part of efficient, profitable and controlled mining operations.

Miguel Petersen
Vega Controls SA (Pty) Ltd
Tel. +27 11 795 3249
miguel.petersen@vega.com
www.vega.com

instrotech
INSTRUMENTATION AND PROCESS CONTROL
A Comtest Group Company
Tel: JHB: +27 (0) 10 595 1831
sales@instrotech.co.za I www.instrotech.co.za

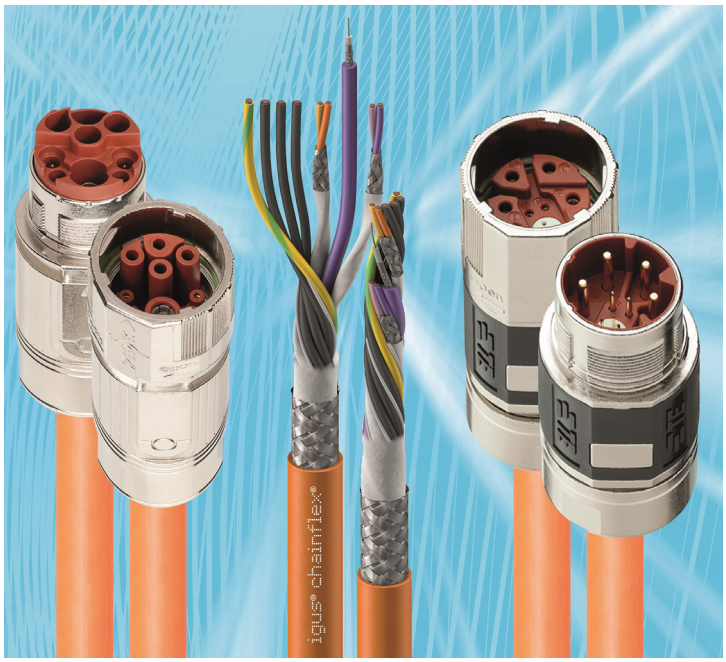


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Ready-to-Use Hybrid Cables



Cable manufacturer igus South Africa continues to expand its readycable hybrid range to meet increasing demand for simplified solutions in automation applications.

The hybrid cables combine power and data transmission in a single line which reduces the need for multiple cables and reduces the space and weight of installations.

These latest additions also include harnessed hybrid cables for Siemens SINAMICS S210 drives with OCC interfaces and SEW-EURODRIVE motors with MOVILINK DDI.

These cables are available with tough PUR jackets or more cost-effective PVC options and gives users the flexibility to choose accordingly depending on their application.

igus also provides direct access to EPLAN Electric P8 macros which enables engineers to drag and drop cable data into digital plans and cut planning time by up to 50 percent.

Managing director of igus South Africa, Ian Hewat, says hybrid technology is the future of cabling in automation and that solutions are available for most commonly used systems.

The company is also continuously expanding its readycable portfolio to deliver wide ranging solutions for continuous use in energy chains.

These cables are designed with strong outer jackets, strain-relieved cores and movement-optimised stranded wires that ensure durability even in moving applications.

In addition the cables also have electromagnetic compatibility to prevent interference between power and data transmission.

Cables are also subjected to millions of test cycles in igus's laboratory and this underpins the company's confidence in offering a 36-month chainflex guarantee.

"Hybrid technology is the way of the future and we are continuously expanding our portfolio of ready-to-connect hybrid cables from the readycable series in order to offer our customers a fast, reliable and cost-effective solution for continuous use in energy chains."

Ian Hewat
igus South Africa
Tel. +27 11 312 1848
ihewat@igus.net
www.igus.co.za

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Mining Process Control Combo





HI1006-3805, HI2004-1805 and HI2004-2805

glass sensor, with titanium matching pin.
• Smart probe: With RS485 connection, with 5m cable
• Designed for demanding industrial applications
• PVDF body material: Easy to clean and disinfect. Also resistant to most chemicals (E.g. Solvents, sodium hypochlorite), ultraviolet light and fungal growth).
• Suitable for continious measurement of pH: Applications such as urban wastewater treatment, industrial effluent treatment and surface water monitoring. Probe and accessories installed directly in-line, immersed in a tank, or in a flow cell.

In the demanding world of mining and industrial process control, precision and reliability are paramount. Hanna Instruments introduces the HI520-Mining Process Mining Combo. This is a comprehensive solution designed to optimize your operations through precise monitoring and control of critical parameters.

Advantages Of The Hi520-Mining Combo

This all-in-one package combines cutting-edge technology with rugged durability to provide unparalleled performance in harsh mining environments.

The Combo package includes a Universal Process Controller, (Choice of Panel or Wall Mount Unit), a pH probe (HI1006-3805), and a ORP Sensor (choice of either a Platinum Sensor (HI2004-1805), or a Gold Sensor (HI2004-2805).

The Combo is designed to deliver real-time data and automated control for maximum efficiency.

HI520-0540 Controller

• Panel Or Wall Mount Options
• Control Modes (Proportional or PID)
• The flexibility in programming allows for fine-tuning of a set point to be maintained with tight control preventing any overshoot and waste of chemicals
• Waterproof Enclosure: IP65 (Nema 4X) rating ensures durability in harsh environments.
• Large LCD
• Modus Integration: Easily integrates into Modbus networks for remote monitoring, setup, and configuration

HI1006-3805 pH Probe

• PTFE junction: Minimizing the potential for clogging and chemically resistant.
• Ceramic junction: Porous chemically resistant plug that connects the reference electrode to the process electrically.
• Designed for: Applications/Environments, that require a (HT)

Choose The ORP Sensor For Your Specific Needs

HI2004-1805 Platinum Sensor

• Ideal for general-purpose ORP measurements
• Excellent chemical resistance
• Platinum Electrode
• Provides excellent chemical resistance and stability
• Ensures accurate readings in a wide range of applications

HI2004-2805 Gold Sensor

• Specifically designed for cyanide applications, for example: gold mining
• Specifically designed for high sensitivity to cyanide levels, allowing for precise monitoring & control of Cyanide concentrations.

The Hanna Instruments HI520 is an advanced, dual-channel universal process controller designed for industrial, municipal, and commercial applications requiring continuous monitoring and control of water quality parameters, including pH, ORP, Conductivity, Dissolved Oxygen (DO), and Turbidity.

Its ability to handle virtually any combination of two compatible digital probes makes it ideal for complex, multi-parameter, or dual-monitoring scenarios.

Renee Christoph
Durban Tel. +27 31 701 2711
Johannesburg (head office) Tel. +27 11 615 6076
Eastern Cape Tel. +27 41450 5685
Cape Town Tel. +27 21 946 1722
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Simplifying Safety Verification for SA Manufacturers

No more clipboards. No more guesswork.



Functional safety is the backbone of every automated industrial operation, especially in high-risk, high-output environments like those found across South Africa's manufacturing and processing sectors.

Emergency stops, safety interlocks and light curtains play an important role in protecting people, preventing downtime and ensuring compliance with local and international regulations.

Yet, for many South African facilities, the process of verifying these systems remains manual, labour-intensive and incredibly time-consuming. Until now.

The Reality of Traditional Safety Testing

Across local plants, whether in FMCG, food processing, mining or automotive, functional safety checks still often rely on teams of engineers manually triggering devices along a line.

One engineer monitors the HMI or control panel, while another walks the floor testing devices and relaying instructions: "Ready?" "Pushed." "Confirmed." These verbal back-and-forths take an incredible amount of time, are prone to error and require skilled resources.

Documentation is often incomplete or inconsistent, especially when time is tight or teams are short-staffed.

For operations looking to minimise downtime and improve efficiency, this outdated approach presents a growing challenge.

Smarter with Sysmac

OMRON's NX Safety platform offers a modern solution: Online Safety Functional Test Verification—a feature built into the Sysmac Studio engineering environment.

This intuitive tool allows safety verification to be carried out digitally, with step-by-step guidance and full traceability, all from a single workstation.

Once connected to the NX Safety Controller via Ethernet or Wi-Fi, the system walks the user through each safety test, whether it's checking an e-stop, light curtain or door interlock.

As each component is tested, the software records the real-time response of the safety program, logging it automatically with a timestamp.

No more clipboards. No more guesswork. And in many cases, no second engineer is needed.

Reliable Reporting for Safety Compliance

For South African companies navigating strict health and safety requirements, audit readiness is non-negotiable.

This tool generates a comprehensive, digital test report after each verification cycle, complete with a safety signature, ensuring traceability for inspections or certification processes.

This is particularly useful in regulated sectors like pharmaceuticals, food and beverage, and petrochemicals.

Should a test step fail, it can be flagged, annotated and retested. The tool supports both first-time commissioning and ongoing routine maintenance, helping teams ensure ongoing compliance with standards like ISO 13849-1 (PLe) and IEC 61508 (SIL3).

More Efficiency, Less Downtime

Perhaps most importantly for South African manufacturers working with tight teams and limited resources, the Online Safety Functional Test allows a single operator to manage the process end-to-end.

This reduces the need for multiple skilled personnel, shortens testing cycles and ensures consistent procedures, regardless of plant size or shift changes.

Future-Ready Functional Safety

OMRON's NX Safety platform offers a modular and scalable approach to safety control that meets the needs of both small manufacturers and large, complex installations.

With digital safety verification built in, it brings engineering teams a powerful tool to reduce risks, save time and keep operations running safely and smoothly.

Cezanne Gonsior
Omron Electronics (Pty) Ltd
Tel. +27 11 579 2600
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Reliable pH Measurement Where It Matters Most



In high-precision pharmaceutical processes such as bio-fermentation, blood fractionation, or buffer preparation, exact pH control isn't just important — it's mission-critical. Even small deviations can impact yield, product quality, and regulatory compliance.

That's where the M4 Knick SE 555 pH sensor excels, making it a trusted choice for life-science applications. Why the SE 555 is ideal for pharma:

High accuracy & long-term stability - Accurate pH measurement is essential for reproducible results in fermentation and fractionation, and the SE 555 delivers consistent performance even in challenging media.

Robust, reliable design - Built for the most demanding pharmaceutical process environments—from nutrient-rich broths to complex biological fluids—the M4 Knick SE 555 delivers reliable performance with minimal drift, extended maintenance intervals, and full CIP/SIP capability.

Fast response time - Quick, reliable readings help optimize process control and improve product consistency.

Seamless system integration - Sensor and transmitter are compatible with modern automation and control systems, simplifying data logging and compliance with GMP standards.

Designed with compliance in mind - Ideal for regulated environments where traceability and documentation are required, supporting quality assurance and audit readiness.

Whether you're fine-tuning fermentation conditions or monitoring sensitive biological separations, the M4 Knick SE 555 provides the pH measurement performance pharmaceutical teams rely on.

Henning Springer
MECOSA (Pty) Ltd
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measure@mecosa.co.za www.mecosa.co.za

Craft Great Beer with Smarter Brewing Technology

Every craft brewery deserves access to world-class process technology without the complexity of large-scale industrial systems. The Centec GmbH Craftline range has been specifically developed for craft breweries producing up to 100 hl/h, providing cost-effective process solutions that are easy to implement, practical to operate, and scalable as your brewery grows.

The Craftline portfolio includes:

Craft DeGas-Cold – Efficient water de-aeration using advanced column technology

Craft Wort Aerator – Reliable wort aeration with optional precision oxygen measurement and control

Craft Blender – Flexible high-gravity beer dilution and beer/syrup blending for greater production versatility

Craft Carbonator – Precise CO dosing using Centec's proven Vortex-Venturi technology

Why choose Craftline?

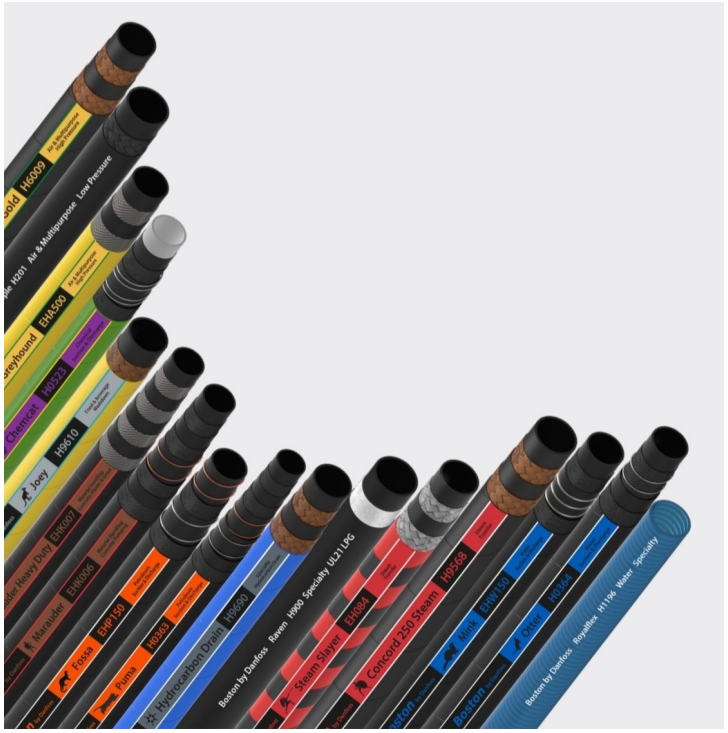
- Purpose-built for craft breweries
- Cost-effective investment
- Modular, scalable automation
- Optional high-precision inline sensor technology
- Easy installation, operation and configuration
- Designed to improve product consistency and brewing efficiency

Whether you are launching a new brewery or expanding your production capabilities, the right process technology can make all the difference.



Raymond Karsten
Instek Control (Pty) Ltd
Tel. +27 12 998 6326
info@instek.co.za www.instek.co.za

BMG Expands Fluid Technology Portfolio with Boston by Danfoss Industrial Hose



BMG's Fluid Technology division has expanded its hose and fittings portfolio with the introduction of the Boston by Danfoss Industrial Hose range, strengthening the company's integrated hose solutions for diverse industrial applications across Africa.

"The launch of the Boston by Danfoss hose range marks a significant development for BMG's Hose and Fittings division, which has built a strong reputation for supplying hydraulic hose systems and related components to many industries, including mining, manufacturing, agriculture, energy and infrastructure," says Kobie Albrecht, Product Manager – Hose and Fittings, Fluid Technology division, BMG.

"By adding the Boston by Danfoss Industrial Hose range to our established hydraulic offering, we are able to meet growing demand from customers seeking a single source for both hydraulic and industrial hose requirements.

"This new range enables us to provide customers with a more comprehensive solutions service in key industrial transfer applications, where durability, flexibility and dependable performance are essential.

"Typical applications are for air and multipurpose services, chemical transfer, food and beverage processing, material handling, oil and petroleum transfer, steam applications and water conveyance.

"BMG has partnered with Danfoss for many years to supply hydraulic hose and fitting solutions engineered for demanding operating conditions.

"This extensive portfolio includes braided hydraulic hoses, high-pressure spiral hoses, suction and return hoses, as well as a complete range of fittings, adaptors and steel tube fittings.

"These products are complemented by globally recognised Danfoss brands, including Winner and Aeroquip, which are widely specified for reliability, safety and performance.

"By combining internationally recognised products with local technical expertise and support, the company is able to simplify procurement, improve service levels and ensure consistent product performance in many different applications."

The BMG team works closely with Danfoss to offer on-site hose manufacturing capabilities through custom-designed containerised hose assembly units.

These mobile facilities can be deployed directly at customer operations, enabling faster hose replacement, improved quality control and reduced downtime in environments where equipment availability is critical.

The introduction of Boston by Danfoss Industrial Hose reinforces BMG's commitment to providing solutions that help customers improve productivity and reliability.

Combined with the company's established technical expertise, national support network and long-standing partnerships with leading global manufacturers, the new range further strengthens BMG's position as a comprehensive supplier of fluid technology solutions for industry.

Kobie Albrecht
BMG
Tel: +27 11 620 7429
jacobusa@bmgworld.net ***www.bmgworld.net***



What Makes a Valve Actuator Reliable and Efficient in Demanding Applications?



When selecting an actuator, it is important to look beyond torque alone. Speed, durability, reliability and efficiency are key factors that can directly influence plant uptime, maintenance and operating costs.

So, how can these factors be achieved through actuator design?

High-Speed Operation

Faster valve operation can improve process response and reduce operating time. Kinetrol actuators are designed for fast quarter-turn operation, with suitable applications achieving less than 1 second operation.

Durability

High cycle capability helps extend equipment life and reduce replacement frequency. The robust Kinetrol design is capable of delivering 2–4 million operations, depending on the model and application.

Reliability

Critical processes require consistent performance with minimum unexpected downtime.

Kinetrol's single-vane design, one moving part and shock-absorbing capability help provide dependable operation in demanding environments.

Efficiency

Lower energy consumption and fewer interruptions can contribute to better operating economics.

The Kinetrol actuator design can provide efficient air consumption, reduced maintenance requirements and fewer shutdowns, supporting improved lifecycle value.

The key takeaways

An actuator is not simply about generating torque. Its design, operating speed, cycle life, reliability and efficiency all contribute to the overall performance of a valve automation system.

Kinetrol actuators can help improve plant reliability, availability and long-term operating efficiency.

Andre Anker
Rotatech
Tel. +27 11 708 6455
andre@rotatech.co.za www.rotatech.co.za

Achieve Reliable Turbidity Measurement



Consistent product quality starts with accurate process measurement. The Anderson-Negele ITM-51 Backscatter Turbidity Sensor is designed for hygienic food, beverage, dairy, and brewing applications where reliable turbidity monitoring is essential.

Key benefits include:

- Precise backscatter turbidity measurement for hygienic processes
- Continuous monitoring of product quality and process conditions
- Ideal for product differentiation, interface detection, and process optimisation
- Hygienic design for CIP/SIP applications
- Robust stainless steel construction for long-term reliability
- Seamless integration into modern process automation systems

The ITM-51 helps manufacturers improve product consistency, reduce product losses, and optimise production efficiency through dependable, real-time turbidity measurement.

Raymond Karsten
Instek Control (Pty) Ltd
Tel. +27 12 998 6326
info@instek.co.za www.instek.co.za

Electra Mining Africa Showcases the Technologies Shaping Tomorrow's Industry



As industrial technologies continue to evolve at pace, mining, manufacturing and industrial businesses are under increasing pressure to improve productivity, strengthen safety, reduce operating costs and meet growing sustainability expectations.

At the same time, advances in digital technologies are transforming how organisations design, manage and optimise their operations.

The focus has shifted from exploring technological possibilities to implementing practical solutions that deliver measurable business value.

As these technologies continue to mature, organisations are moving beyond stand-alone digital solutions towards connected, intelligent operations.

Industrial automation, artificial intelligence (AI), robotics, predictive maintenance, digital manufacturing and smart operational systems are increasingly being integrated to improve decision-making, optimise asset performance, reduce downtime and improve safety in the workplace.

For industry professionals looking to explore the latest industrial technologies and solutions, Electra Mining Africa will once again bring together technology solution providers, equipment manufacturers, engineering specialists and industry experts under one roof.

Reflecting continued confidence expressed by industry, Electra Mining Africa has expanded its footprint for the 2026 edition.

The exhibition has grown by 4,000m² compared with the previous event to a record 44,000m² of net exhibition space. Exhibitors will occupy six indoor exhibition halls together with expanded outdoor display areas.

Taking place from 7-11 September at the Johannesburg Expo Centre in Nasrec, Electra Mining Africa will showcase thousands of products, technologies and services from more than 1,000 local and international exhibitors.

From large-scale mining equipment and industrial machinery to automation systems, digital technologies, power solutions and manufacturing innovations, the exhibition brings together a broad range of technologies, equipment and services for the mining, manufacturing and industrial sectors.

Attendees will also discover pumps and valves, welding and fabrication equipment, safety solutions, personal protective equipment (PPE), tools, components and engineering services.

They will be able to compare solutions, engage directly with technical specialists and company representatives, and evaluate products designed to address real operational challenges.

While the mining, automation, electrical, power, manufacturing and transport sectors each have their own specialised technologies and expertise, today's industrial operations increasingly rely on integrated solutions to improve productivity, efficiency and safety.

Bringing these sectors together under one roof enables industry professionals to better appreciate how these complementary capabilities support smarter industrial operations.

Beyond the exhibition floor, Electra Mining Africa offers opportunities for professional development, networking and knowledge sharing through a programme of seminars and workshops.

New for 2026, the SAIMechE Skills and Career Hub will encourage collaboration between industry and the education and training sector, while a range of co-located events will further reinforce the exhibition's focus on technical excellence, innovation and industry advancement.

Natasha Heiberg
Montgomery Group Africa
Tel. +27 11 835 1565
natasha.heiberg@montgomerygroup.com
www.electramining.co.za

Click here to register ...



Smooth Levels for Sticky Situations - Safer, More Reliable Measurements in Asphalt Storage Tanks



A leading manufacturer of roofing and insulation products in Alberta, Canada operates a major asphalt shingle plant in Calgary. At the heart of the operation are four heated asphalt storage tanks, each standing 55 feet tall.

Accurate level measurement in these tanks is essential for inventory management and uninterrupted production.

Yet for years, the plant struggled with unreliable level sensors and even worse, a lack of service support when those sensors failed. Everything changed when the company turned to VEGA.

When Level Measurement Fails, Everything Gets Harder

Precise level measurement is fundamental in asphalt production. Operators need a clear, real-time view of tank inventory to prevent overfills, maintain product flow, and keep production running smoothly.

But when sensors malfunction, the consequences can be more than inconvenient.

At this plant, unreliable readings forced personnel to climb the tanks and take manual measurements; a task that was not only less accurate, but also risky.

Winter conditions in Calgary made the situation even more hazardous. Snow and ice on the steps and platforms increased the danger of slips and falls, and the frequency of these climbs grew as the old sensors continued to fail. With no service support available from their previous supplier, the company knew it was time for a change.

Reliability + Safety = VEGAPULS 6X

After a thorough assessment of the heated asphalt tanks, VEGA's experts swiftly identified several critical challenges, including extremely high process temperatures caused by asphalt vapours, vapour-induced buildup, and the need for a measurement range of at least 18 metres from the current mounting locations.

To address these issues, VEGA recommended their latest non-contact radar sensor, the VEGAPULS 6X. Specifically designed for tough environments, the 6X® can withstand process temperatures up to 450°C, comfortably surpassing the demands of the asphalt tanks, and offers an extensive measurement range of up to 120 metres, far exceeding the plant's requirements.

Confident in its reliability and performance, the manufacturer equipped each of their four tanks with a VEGAPULS 6X sensor.

Technology Backed by True Service

While the old sensors had caused operational headaches, the lack of service support had been just as damaging. VEGA's service team handled the commissioning and setup of all four sensors; a critical step, given the plant's urgent need for accurate measurements.

Thanks to the intuitive design of VEGAPULS 6X and the convenience of PLICSCOM, VEGA's display and adjustment module, the process was remarkably efficient. A VEGA technician configured the first sensor, copied the settings via PLICSCOM, and uploaded them to the remaining units.

Within an hour, the entire tank farm was fully operational with new, reliable level measurement.

Expert Support Under One Roof

Today, the manufacturer benefits from precise, dependable level readings that support smoother production and safer operations. Plant personnel no longer need to climb tanks in harsh winter conditions, and the team can trust that VEGA's service experts are always within reach.

VEGAPULS 6X delivers the accuracy and durability required for asphalt applications, while VEGA's commitment to customer support ensures long-term confidence in the equipment.

For companies across the building materials sector, this combination of advanced technology and expert service is exactly why VEGA continues to be the partner of choice for process optimisation.

Miguel Petersen
Vega Controls SA (Pty) Ltd
Tel. +27 11 795 3249
miguel.petersen@vega.com
www.vega.com

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Portable Appliance Tester



This new appliance tester is the ideal tool for testing the safety of electrical appliances in accordance with DGUV regulation 3 and BetrSichV.

It enables the precise measurement of protective conductor or touch current using the equivalent leakage current method.

The device complies with the DIN EN 50678 (VDE 0701) procedure for checking the effectiveness of protective measures after repairs and the DIN EN 50699 (VDE 0702) procedure for repeat testing.

Thanks to the large, inverted LCD display with backlighting, the measurement results can be read clearly under all lighting conditions.

The appliance tester is characterized by its simple operation: With just three buttons, you can perform tests for protection class I and II devices as well as extension cables.

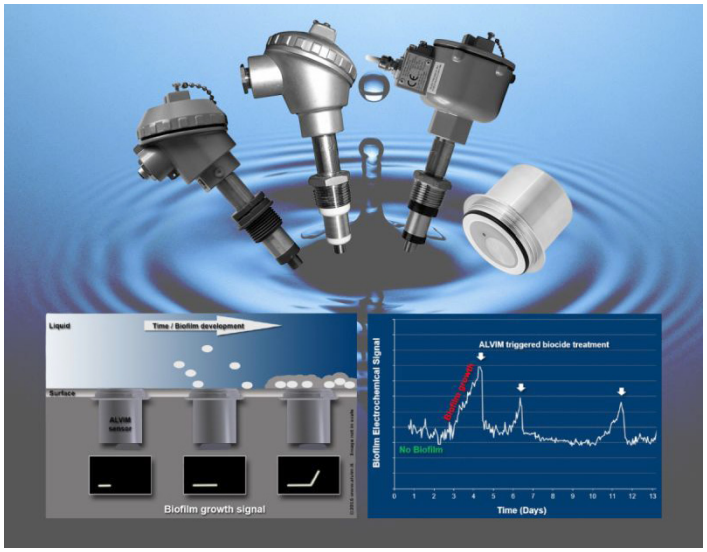
The simple pass/fail function for the Riso (insulation resistance), Rpe (protective conductor resistance) and Iea (equivalent leakage current method) measurement methods immediately indicates whether the test object has passed the test.

The appliance tester can also check the wiring of sockets and carry out a mains voltage measurement via the Schuko plug. The appliance tester is particularly suitable for mobile use due to its battery operation. Powered by six AA batteries, it offers flexibility and independence from external power sources.

This practical and user-friendly device is an indispensable tool for anyone who needs to regularly check electrical appliances for safety.

Edwin Brown
Vepac Electronics
Tel. +27 11 454 8053 sales@vepac.co.za

Early Detection of Biofilm



Biofilm starts forming long before it becomes visible. Detecting it early is critical to protecting product quality, equipment performance and process reliability.

The ALVIM Srl Biofilm Monitoring System provides continuous, real-time monitoring of bacterial biofilm growth, detecting colonisation from the earliest stages.

Unlike conventional fouling sensors, ALVIM Srl specifically detects bacterial biofilm, enabling cleaning and biocide treatments to be optimised while reducing unnecessary maintenance and operating costs. It can detect bacterial settlement from as little as 1% surface coverage by microorganisms.

Instek Control (Pty) Ltd is the authorised supplier of ALVIM Srl Biofilm Monitoring Systems in South Africa, providing advanced biofilm monitoring solutions for industries including food and beverage, pharmaceutical, water treatment, mining and industrial process applications.

Raymond Karsten
Instek Control (Pty) Ltd
Tel. +27 12 998 6326
info@instek.co.za www.instek.co.za

Seeing Temperature Clearly Across the Glass Manufacturing Line



In glass manufacturing, temperature isn't just critical, it's everywhere. From furnace crowns and forehearths to annealing lehrs and forming equipment, thermal variations can directly impact energy consumption, material quality and product performance.

Mikron Thermal Imaging Cameras bring a powerful perspective: continuous, non-contact infrared imaging that allows teams to see how heat behaves across surfaces and equipment in real time.

Where thermal imaging delivers value in glass production:

- Prevent hotspots and energy waste - identify inefficient zones before they escalate
- Monitor refractory wear and equipment health - spot anomalies early and plan maintenance
- Drive process consistency - verify uniform thermal profiles across batches and shifts
- Support safety and predictive maintenance - reduce unplanned downtime and operational risk

As glass manufacturers work to reduce energy intensity and improve sustainability, thermal imaging is becoming an essential tool, helping teams optimise performance and uncover issues that are invisible to the naked eye.

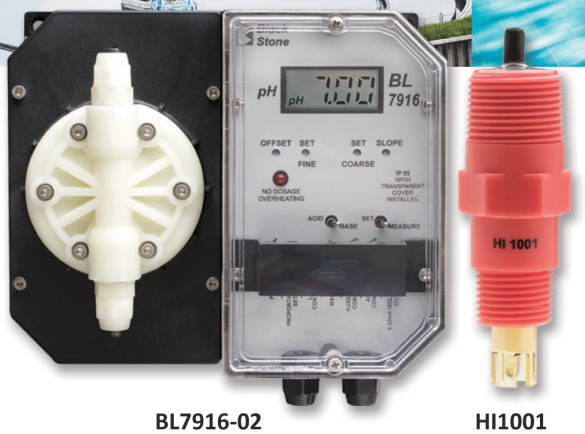
Understanding how heat behaves across your process is now just as important as hitting a single temperature setpoint.

Henning Springer
MECOSA (Pty) Ltd
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E: pe@hanna.co.za

Infrared Thermometers for Electrical, Industrial



Hand-held infrared (IR) thermometers have gone from exotic to commonplace in just a few short years — and Comtest, distributor of Fluke test and measurement equipment, says that shift is transforming how maintenance teams in electrical, industrial, and HVAC environments approach troubleshooting.

Portable and convenient, these tools let technicians check both product quality and process quality without ever touching the equipment being tested.

Fluke's range of IR thermometers goes a step further on accuracy.

The Fluke 62 MAX+ features two targeting lasers instead of the usual single centre-spot laser — dual rotating beams trace the outer boundary of the exact circle being measured, so users know precisely what they're reading

Temperature measurement strategies

In general, there are three ways to use any kind of infrared, non-contact thermometer:

· **Measuring the temperature at a spot**

This type of measurement is used to measure and track temperature at a single spot.

It is useful for trending an object's temperature or for comparing a measurement to a specification. A thermometer with high repeatability helps ensure consistency for this kind of measurement.

· **Comparing the temperature of two spots**

This type of measurement might be used to check the functioning of a steam trap by measuring the temperature of the inlet and outlet.

No change indicates the trap has failed open. A very large change indicates that the trap has failed to close.

· **Scanning an object and detecting changes within a continuous area on it**

This capability allows the user to find hot or cold spots on housings, panels, and structures.

For example, one can check the heat sink of air-cooled

and HVAC Applications

transformers for cool tubes that indicate a restricted ?ow or a lack of ?ow.

Applications for infrared thermometers

Infrared thermometry can be used for process monitoring, predictive and preventive maintenance in plants, electrical applications, quality assurance, and other uses.

Infrared (IR) non-contact thermometers are ideal for moving targets and machinery, hazardous, inaccessible, or distant targets, electrical components, "big picture" evaluations of machinery or surfaces, trending records, and even protection against litigation and insurance claims.

In fact, insurance companies are encouraging their customers to implement preventive infrared scanning.

IR thermometers and imagers can save time and money for contractors and customers alike, and can perform diagnostics that were previously impossible without shutting down systems.

Here are some suggestions for applications in which IR non-contact thermometers have proven useful:

Electrical maintenance

Check for heat build-up created by loose connectors. Troubleshoot problems in battery banks, power panel terminations, ballasts, switchgear, and fuse connections. Identify hot spots in the output filters on DC battery connections.

Use an IR thermometer to inspect supply power connections and circuit breakers (or fuses) for equal temperatures. An IR thermometer is effective for determining the source of the problem when a thermal overload protection device fails and the motor shuts down.

Because electrical currents generate heat, temperature monitoring is an efficient way to predict potential equipment failure.

Equipment maintenance

Check moving parts and housings in motors and gearboxes for hot spots. Temperature change can indicate developing problems in many types of equipment, from ovens and boilers to freezers.

Routine temperature audits of generators and their bearings can prevent expensive repairs.

Scanning bearing temperatures with an infrared thermometer allows the maintenance engineer to detect hot spots and schedule repairs or replacements before the problem leads to an equipment failure.

Building controls

Monitor HVAC/R components for quick energy audits and room balancing in a short time. An IR thermometer with a 60:1 distance-to-spot ratio makes elevated vents and returns easier to access.

For example, if a thermometer has a 10:1 distance-to-spot ratio, one can stand 10 inches away from the target and measure the temperature of a one-inch circle. At 10 feet away from the target, the measurement spot will be a one-foot circle.



An IR thermometer can quickly measure compressor head, compressor oil sump, evaporator coil and suction line, discharge line, condenser coil and liquid line, and fan motor temperatures.

Insulation on all surfaces can be scanned for leakage and losses. Higher temperatures are indicated by a shift toward white. Lower temperatures are indicated by a shift toward black.

Process/product

Monitor process lines. Check the temperature of different products on production lines. These can vary from rubber tyres to plastic, from concrete to chocolate bars.

Other useful features

A lighted display makes it easier to view results in poorly lit areas.

High-temperature alarm warnings call attention to temperatures exceeding a specified threshold. Alarms that are both audible and visible are more effective even in loud environments.

Comtest
Tel. +27 10 595 1821
sales@comtest.co.za
www.comtest.co.za
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An Integrated Approach Delivers Better Boiler Water Treatment



Boiler water treatment is often viewed as a service, while water softener systems are treated as a separate equipment purchase. In practice, however, the two are closely connected.

When water treatment and softener systems are planned, supplied and managed as an integrated solution, businesses can reduce operating costs, minimise downtime and benefit from clear accountability throughout the system.

According to Lionel Maasdorp, MD of Allmech, the company has increasingly encountered sites where customers have invested in new boilers or upgraded existing equipment, only to discover that the accompanying softener has been undersized or is not suited to the application.

This can lead to frequent regeneration cycles, poor water quality and additional expenditure to correct the installation after the fact.

"Some suppliers take a one-size-fits-all approach instead of gathering all the information about the application," says Lionel.

"If the equipment has not been sized correctly or the plant design does not address the actual shortcomings on site, the customer ultimately pays the price."

Designing the softener system, dosing programme and overall water treatment strategy together helps ensure that every component performs the role it was intended to.

It also reduces the risk of different parts of the system working against one another rather than as an integrated whole.

The benefits extend beyond the initial installation

For example, because Allmech supplies both the equipment and the ongoing water treatment programme, its technicians visit customer sites regularly and develop a detailed understanding of each plant over time.

This means potential issues can often be identified before they become major failures, while any upgrades or changes to the system can be considered within the context of the entire operation. It also creates a clear line of accountability.

Addressing the root causes of problems, not the symptoms

A competent supplier should address the entire system to fix boiler problems. A single partner can take responsibility for identifying and addressing the root cause of an issue, rather than different suppliers attributing problems to one another,

"An integrated relationship also prevents unnecessary duplication," he says. "A new supplier may unknowingly repeat troubleshooting steps that have already been tried without success, while a long-term partner builds valuable knowledge of a site's operating history.

"Over time, this familiarity can translate into faster problem solving, more informed recommendations and, in many cases, cost savings for the customer."

A team effort

Despite manufacturing and supplying softener systems, Allmech has found that some customers are still unaware of this capability.

This, Maasdorp says, is likely because in many organisations, procurement decisions are made separately from day-to-day plant management, meaning opportunities to consolidate suppliers are sometimes overlooked.

"It's important for internal stakeholders to work together," he says. "Your whole team needs to understand that if good-quality salt isn't maintained, chemicals are diluted or recommended operating practices aren't followed, the system won't deliver the results it's designed to achieve, and you're putting your equipment at risk."

For maintenance managers and procurement teams evaluating water treatment suppliers, the conversation should therefore extend beyond the price of equipment and look at total cost of operation.

Reducing chemical treatment may appear to save money initially, but premature boiler wear and reduced equipment life can make it a far more expensive decision over time.

Ultimately, Maasdorp says, the most effective water treatment programmes are built on partnership.

"When equipment, chemistry and technical support work together as part of a single strategy, businesses are better positioned to protect their assets, reduce operating costs and keep critical steam systems performing reliably."

Lionel Maasdorp
Allmech
Tel. +27 11 849 2731 lionelm@allmech.co.za

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Dual Hazardous Location Cabinet Cooler Systems for Large Scale Industrial Protection



In hazardous industrial environments, keeping electrical enclosures cool isn't just about performance—it's about safeguarding critical infrastructure.

EXAIR's new Dual Hazardous Location Cabinet Cooler® Systems are purposebuilt for large electrical enclosures operating in classified hazardous areas, delivering reliable, maintenance free cooling where traditional solutions fall short.

Engineered and certified for Class I Div 1 (Groups A–D), Class II Div 1 (Groups E–G), and Class III environments, these high capacity systems provide up to 5,600 Btu/Hr of cooling power.

They are ideal for oversized control panels, MCCs, and other large enclosures exposed to explosive gases or combustible dust.

Cooling Designed for Demanding Conditions

The Dual Cooler configuration ensures even, consistent cooling throughout large enclosures—an essential advantage when protecting sensitive electronics from heatrelated failure.

Each unit is UL tested for hazardous locations and mounts easily through standard electrical knockouts, simplifying installation in both new and existing systems.

An automatic drain filter separator prevents moisture ingress, while optional electronic temperature controls allow precise thermal management.

With no moving parts, no refrigerants, and no maintenanceintensive components, these systems offer long-term reliability and reduced downtime.

Part of EXAIR's Complete Cooling Ecosystem

The Dual Hazardous Location systems expand EXAIR's comprehensive Cabinet Cooler® family, which includes solutions for NEMA 12, 4, 4X, and ATEX-rated enclosures.

With cooling capacities ranging from 1,000 to 5,600 Btu/Hr, EXAIR covers everything from compact control panels to large hazardous-area installations.

For facilities navigating combustible dust, explosive gases, or stringent compliance requirements, EXAIR's hazardous location coolers deliver a dependable, engineered approach to enclosure protection.

Terri Carlson
ETEST
Tel. +27 82 781 8557
terri@etest.co.za
www.etest.co.za

Portable Conductivity TDS Meter

Bass Instruments' Portable Conductivity TDS Meters are used in laboratories, aquariums, and industrial applications.

Users can adjust temperature compensation either manually or automatically and calibrate the device either manually or automatically.

The meter dimensions are 92 x 155 x 33 mm, and it weighs approximately 300 grams.

It has a battery life of 300 hours and features an LCD display.

The device also includes programmable automatic shut-off.



- **Conductivity Ranges:** 20.00 µS to 200.0 mS across multiple sub-scales.
- **Data Logging:** Stores up to 80 field measurements.
- **Power Supply:** Powered by a 9V alkaline battery yielding up to 300 hours of operational life.
- **Design:** Compact dimensions of 92 x 155 x 33 mm with a weight of 300 grams.
- **Operation:** Features manual or automatic temperature compensation, manual/ automatic calibration, an LCD display screen, and a programmable auto-shutoff mechanism.

Raymond Karsten
Instek Control (Pty) Ltd
Tel. +27 12 998 6326
info@instek.co.za www.instek.co.za

Packaging Trends Feature at Propak Cape 2026



Packaging is playing an increasingly important role across the value chain. Beyond its traditional protective function, packaging has become a key consideration in areas such as sustainability, supply chain efficiency, product traceability and brand differentiation.

As market demands evolve, manufacturers, processors and brand owners are increasingly adopting new materials, technologies and production methods to remain competitive.

Several of these developments are expected to feature prominently at the Propak Cape exhibition later this year.

Sustainability remains a significant focus area, with growing demand for recyclable, reusable and fibre-based packaging solutions that support circular economy objectives.

At the same time, businesses continue to seek ways to improve operational efficiency, reduce material consumption and optimise logistics through packaging innovation.

Technology is also reshaping the sector

Advances in automation, digital printing, smart packaging and product traceability are creating new opportunities for manufacturers and brand owners alike.

Customisation is becoming increasingly important as businesses seek packaging solutions tailored to specific products, distribution requirements and customer expectations.

Regulatory compliance, food safety and product integrity are also influencing packaging design and production decisions across a range of industries.

These trends are expected to be reflected across the more than 200 exhibitors participating in Propak Cape 2026.

The exhibition will showcase products, technologies and services spanning packaging, plastics, processing, printing, labelling and production, providing a broad overview of current developments within the sector.

Live equipment demonstrations will form part of the exhibition, offering visitors the opportunity to observe technologies in operation and gain insight into their practical applications.

The event will also provide a platform for engagement between suppliers, technology providers, manufacturers and industry stakeholders.

"Taking place once every three years, Propak Cape has become an established meeting place for the packaging, plastics, printing and processing sectors," explains Mark Anderson, Portfolio Director at Montgomery Group Africa, organisers of the show.

"The event is particularly relevant to the Western Cape, which accounts for more than 50% of South Africa's agricultural exports and generates significant demand for packaging, processing and related technologies."

The exhibition will be complemented by a programme of industry seminars hosted by the Institute of Packaging SA (IPSA), while Printing SA's one-day conference will deliver additional insights from industry experts.

The Flexographic Technical Association of South Africa (FTASA) will also host its prestigious awards evening alongside the exhibition.

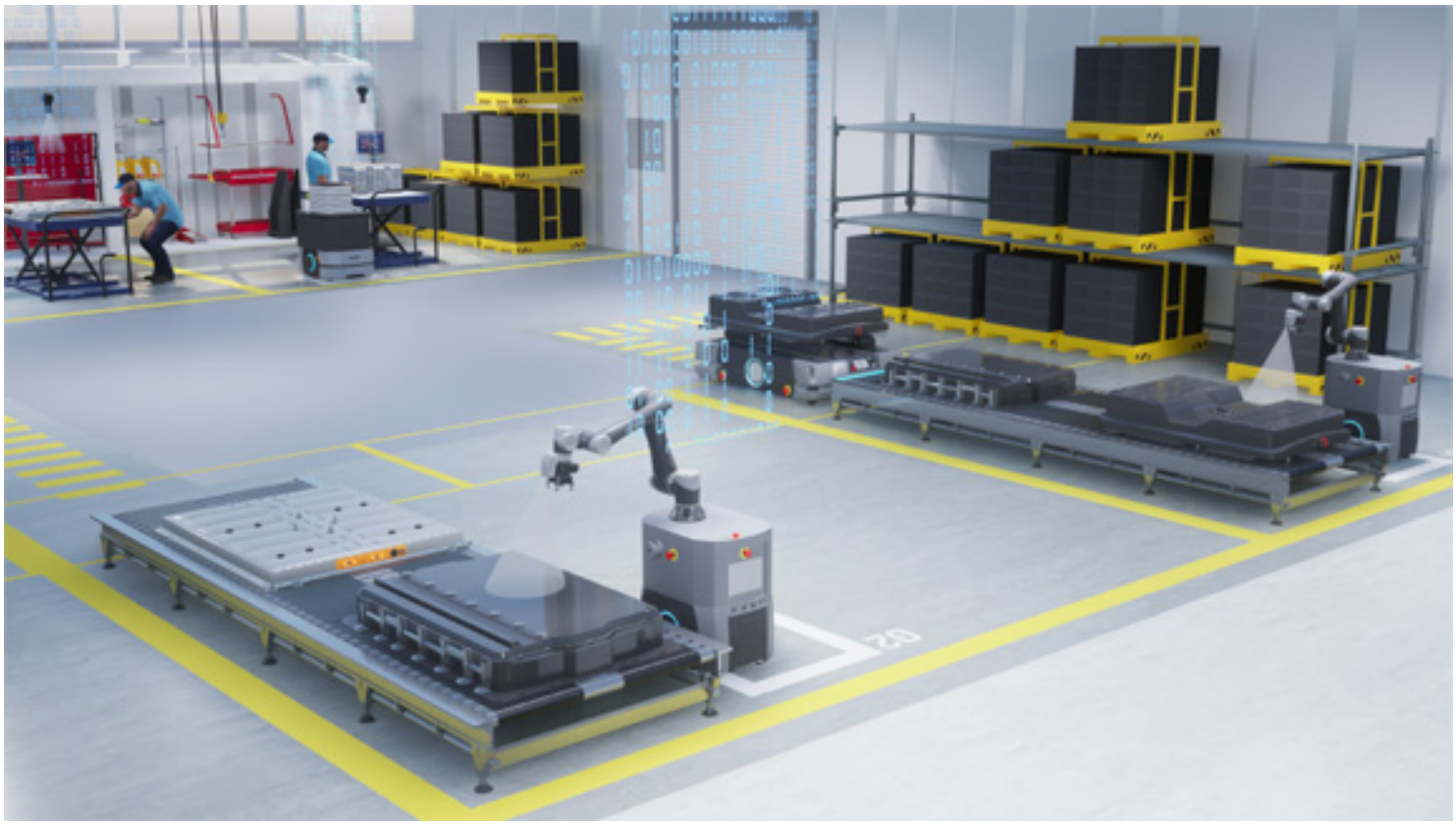
Propak Cape will take place at the Cape Town International Conference Centre (CTICC) from 27-29 October 2026 incorporating Pro-Plas Expo, Print Expo, Pro-Label Expo, FoodPro Expo, and the Wine & Olive Oil Production Expo.

The event is supported by IPSA, Packaging SA, Plastics SA, Printing SA and FTASA.

Natasha Heiberg
Montgomery Group Africa
Tel: +27 11 835 1565
natasha.heiberg@montgomerygroup.com
www.propakcape.co.za



Securing a Battery-Powered Future Through Aut



As the world accelerates its transition to renewable energy and electrified transport, batteries are taking centre stage. Their role in storing energy and powering electric vehicles is vital to meeting the sustainability goals set out at COP28.

Two sectors, namely power and transport, are leading the demand for batteries.

According to the International Energy Agency (IEA), battery deployment in the energy sector alone increased by over 130% in 2023, adding 42 gigawatts to global electricity systems.

Electric cars, bikes, buses and more have become symbols of a cleaner future, but their rise has also exposed challenges in securing raw materials like lithium, cobalt, copper, and nickel.

Raw Material Risks and Recycling Roadblocks

China currently dominates global battery production and controls the majority of raw material supply. While Europe has its reserves, these remain largely untapped due to long lead times to open new mines.

An alternative route is recycling used batteries, but this is more complex than it appears.

The main challenge is the lack of standardisation in battery chemistry and construction. Batteries degrade over time, changing structurally and chemically, which makes it difficult for recyclers to know what they're dealing with, even if databases exist.

Changes in suppliers or internal damage can also affect composition and safety.

Recycling also requires very high levels of purity. Lithium, for example, must be 100% pure to be reused. Any contamination during recovery renders it unfit.

Additionally, batteries are not always returned in good condition, and hidden damage from accidents or misuse further complicates recycling.

Second-Life Potential and Practical Limitations

Not all end-of-life batteries need to be dismantled. If their capacity remains above 80%, they can potentially be reused in stationary energy storage systems.

However, assessing second-life potential is a lengthy process, and a consistent supply of identical battery types is required for large-scale storage, as mixing different batteries is not feasible.

Manual Dismantling: Slow and Risky

Battery dismantling remains largely manual. It's a dangerous and slow process requiring careful discharge and separation of components.

Workers are at risk of electric shock and exposure to toxic substances like solvents and electrolytes.

The current recycling process is not scalable or safe without significant intervention.

Regulations Bring Hope - but Also Delay

The EU Batteries Regulation is a major step towards circularity. It introduces efficiency targets, mandates recyclability, and, crucially, requires batteries in vehicles and electronics to be removable.

omated Recycling

From 2027, large batteries sold in the EU will also require a digital "battery passport" accessible via QR code, helping recyclers understand their composition.

Unfortunately, there is a long wait before this has a real impact. With most batteries lasting 8–15 years, those with digital passports won't enter the recycling stream until 2035 or later.

Until then, smarter testing and identification tools are urgently needed.

The Role of Automation

Automation offers a transformative solution. Combining vision and sensing with AI and robotics allows for safe, efficient battery identification and dismantling.

Robots can perform high-risk tasks, while digital tools can improve material separation and reduce human error.

OMRON is contributing its automation expertise to Germany's DiLiRec research project, which is developing sustainable recycling methods for lithium iron phosphate (LFP) batteries.

Efficient sorting, dismantling and electrode stripping, along with improved data collection, are key focus areas. OMRON's contributions in robotics, data analytics, and AI are helping to accelerate progress toward a circular battery economy.

Europe's reliance on imported raw materials threatens the long-term growth of its energy and transport sectors. Investing in battery recycling infrastructure and automating it is crucial.

By helping unlock safe, efficient, and circular battery recycling, OMRON is proud to be part of the solution driving a more sustainable, battery-powered future.

Cezanne Gonsior
Omron Electronics (Pty) Ltd
Tel. +27 11 579 2600
info_sa@omron.com
www.industrial.omron.co.za

Fork Light Barriers

Fork light sensors from Festo are part of a well-coordinated automation portfolio that includes both pneumatic and electrical components, as well as ready-to-install systems, all at a competitive price-to-performance ratio.

They offer two robust housing versions: one made of metal and the other of reinforced polycarbonate, suitable for various tasks and environmental conditions.

The dynamic teach-in feature makes it easy to set up the SOOF-P version. With high resolution, excellent repetition accuracy, and low hysteresis, these sensors ensure optimal precision.

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When Legislation is Not Enough- How Safe Are Your



Safety in the workplace is paramount in South Africa. In 1993, the country promulgated the Occupational Health and Safety Act 85, 1993 (OHSA).

This comprehensive act consists of no less than 50 sections approved by Parliament.

The sole purpose of the Act is to provide for the health and safety of people at work, including the interactions workers have with machinery (including robots and cobots) when completing the job at hand.

Moving machine parts has the potential to cause severe workplace disabilities, such as amputations, debilitating burns, or blindness.

Omron believes that machine safeguarding is essential for protecting workers from preventable injuries and that any machine part, function, or process that poses any risk must be safeguarded.

When the operation of a machine or, in some cases, even accidental contact injures the operator or others in the vicinity, the hazards must be eliminated.

A Machine Safeguarding Evaluation is the first step towards ensuring that all machines are safe to operate.

These assessments are essential because they assist in identifying and minimising machine-related risks, which in turn prevents workplace accidents.

The evaluation includes ensuring that machine guards and other safety features are functioning properly and according to applicable laws and regulations.

The evaluation can take as little as 45 minutes per machine, and the comprehensive report will indicate where adjustments concerning safety should be made.

Omron believes that machine-safeguarding assessments are essential to business operations. And here's why:

Protecting your biggest assets

A Machine machine-safeguarding assessment assists in identifying potential hazards and risks associated with the use of machinery and equipment during operation.

By implementing appropriate machine-guarding measures, workers are protected from injuries.

Legal Compliance

The strict regulations and standards set by the Occupational Health and Safety Act (Act 85, 1993) and other regulatory bodies do require machine guarding.

Failure to comply with regulations can result in fines, legal penalties, and irreparable damage to a company's reputation. Non-compliance with OHSA can, in severe cases, cause the complete shutdown of operations.

Improving Efficiency and Cost Saving

A Machine Safeguarding Evaluation will reduce downtime caused by safety incidents, increasing productivity and efficiency as a safer workplace also increases staff morale.

Injuries and accidents caused by machinery result in significant costs associated with medical expenses, workers' compensation claims, and lost productivity.

Proper machine guarding will help prevent unnecessary costs.

Managing the Risk

A machine guarding assessment helps companies identify potential hazards and risks associated with their machinery and equipment.

This information can be used to develop risk management strategies that help minimise risk and improve workplace safety.

An Omron-certified safety and risk consultant works off a checklist to evaluate potential hazards.

This checklist is an imperative tool in the evaluation of workplace and equipment safety. This checklist consists of the following key points:

- The **identification of potential hazards**, including pinch points, moving parts and sharp edges in the workspace.
- The **assessment of guarding requirements and safety devices** for each piece of machinery and equipment used.

The assessment is done in line with OHASA and will ensure compliance when met.

Employees?

This includes checking that devices such as interlocks, emergency stop buttons, and safety curtains are in place and functioning correctly.

· The **evaluation of worker safety training** around machinery that is operated during the fulfilment of tasks.

This will include the application of the current procedures in place, and recommendations should adjustments need to be made.

· Final **maintenance inspection** includes checking if the machinery is in a safe, good working order. Machinery should be properly maintained and inspected regularly to ensure that it complies with OHASA and regulations set out by governing bodies.

The safety report will highlight where more in-depth reviews are necessary and is supported by a comprehensive risk score analysis.

The certified safety and risk consultant visually inspects every single machine and piece of equipment, and a consultation is done with operators and managers on how the machine is operated daily.

The company is then supplied with a detailed formal written report containing the status of all machinery and their fitness for use, including hazards present and the occurrence of each hazard.

This indicates the overall level of danger that each piece of equipment presents to workers and operators.

Ensuring the safety of employees is invaluable. It is not only a legal obligation but also a paramount concern for any business.

Despite the implementation of robust safety measures, accidents may still occur. Therefore, companies must prioritise diligence in safeguarding their workers.

Cezanne Gonsior
Omron Electronics (Pty) Ltd
Tel. +27 11 579 2600
info_sa@omron.com
www.industrial.omron.co.za



Smart Instrumentation as a Profit Driver in Pharma



Sub-Saharan Africa's pharmaceutical sector has been on a steady upward trajectory. Regional governments are placing growing emphasis on population health and access to healthcare, and that emphasis is expected to be a key driver of market growth over the coming years.

Reliable, timely delivery of medicines has become a stated priority across the region, opening up real opportunity for local manufacturers.

The move toward pooled procurement mechanisms in Africa is also expected to make the continent more attractive to generics manufacturers looking to establish local production.

In South Africa specifically, the rollout of organised cancer screening programmes is likely to lift demand for oncology treatments in particular.

Industry forecasts put the African pharmaceutical market on track for a compound annual growth rate of roughly 3.4% between 2024 and 2030, driven by rising health awareness, the growing burden of chronic disease and affordability pressures.

South African government data points to the same trend: demand is set to keep climbing on the back of high rates of infectious and lifestyle-related conditions, including obesity, hypertension, diabetes, and cancer.

The cosmetics contract manufacturing sector is expanding just as quickly, as more brands hand production over to specialist facilities in the interest of speed, efficiency, and compliance.

Tighter regulation, shorter time-to-market windows, and the challenge of scaling output without sacrificing quality are pushing manufacturers toward high-precision automation and smarter instrumentation as a competitive edge.

In pharmaceutical production, consistency and traceability aren't optional, and VEGA's measurement technology has become a genuine profitability lever rather than a background utility.

From single-use bioprocessing vessels to high-speed capsule filling lines and steam sterilisation cycles, VEGA's radar, pressure, and point level sensors are built to deliver speed, accuracy and built-in intelligence, exactly the kind of reliability contract manufacturers need when there's no room for a mistake.

Precision Inside Single-Use Systems

Single-use bioreactors have taken hold across pharmaceutical contract manufacturing, largely because they cut cross-contamination risk and shorten turnaround between batches.

But their plastic construction has long been a sticking point for conventional level measurement, particularly where accuracy needs to be achieved without touching the contents.

VEGAPULS 6X addresses that gap. This next-generation radar sensor delivers continuous, non-contact level measurement and is distinguished by an unusually wide dynamic range, allowing it to pick up even very faint signal differences, a genuine advantage when measuring through transparent or semi-transparent plastic vessel walls.

and Cosmetics Manufacturing

Because it reads straight through the container, there's no contact with the process and no compromise to sterility.

With no moving parts to wear or foul, it also demands very little in the way of ongoing maintenance.

For contract manufacturers working with biologicals or active pharmaceutical ingredients in disposable systems, that combination of accuracy and hygienic integrity translates into a meaningful cost and performance advantage.

Holding the Line on Pressure

Steam sterilisation remains one of the most critical steps in both pharmaceutical and cosmetic production, particularly in contract facilities switching between clients and product lines.

Getting it right depends on tight pressure control throughout the cycle, since even small deviations can undermine microbial kill rates or damage sensitive components.

VEGABAR 29 was built with exactly this challenge in mind. Its rapid response time picks up pressure fluctuations within seconds, giving operators the ability to hold sterilisation cycles within tight tolerances.

Its IO-Link digital interface makes it straightforward to fold into existing automation systems, while also feeding back continuous diagnostics and predictive maintenance data.

Given how often contract manufacturers switch between products with different sterilisation profiles, the ability to reconfigure quickly, monitor conditions in real time, and sidestep unplanned downtime has a direct, measurable effect on operating costs.

Confidence at Filling Speed

High-speed capsule filling lines leave little margin for error in point level detection; every dose needs to be complete, clean and within spec. Conventional sensors often struggle with consistency when detecting small volumes of powder or liquid, especially across formulation or capsule-size changeovers.

VEGAPOINT 31, a plug-and-play capacitive point level switch, was designed for exactly this kind of environment.

It picks up the presence or absence of material in the filling line with high precision, and its 360° full-colour status display means operators can check status at a glance from any angle, even in cramped production areas.

That makes it particularly well suited to flexible production lines where fast changeovers are the norm, helping manufacturers cut waste, avoid line stoppages and maintain the consistency that both brand owners and regulators expect.

The Case for VEGA

Where legacy instrumentation is still doing the job on many production lines, VEGA has engineered its sensor range for the connected, compliant factory environments now becoming the norm.

Every device is built around hygienic design principles, using materials compliant with FDA and EC 1935/2004 requirements. The range is also certified for ATEX zones and meets the relevant international benchmarks, including GMP, EHEDG, and 3-A standards.

Integration is straightforward across common communication protocols, IO-Link, HART and Profibus among them, making the sensors equally suited to new builds and retrofits.

Bluetooth connectivity also allows for safe, remote commissioning, cutting setup time and reducing exposure for personnel on the floor.

VEGA's role extends beyond supplying components. The company works alongside manufacturers to help design more intelligent, dependable and cost-effective processes, drawing on decades of experience across pharma and cosmetics applications to deliver solutions matched to specific production needs rather than generic, one-size-fits-all fixes.

Downtime carries a real cost, traceability is a legal requirement rather than a nice-to-have, and market demands can shift quickly.

For contract manufacturers who need instrumentation that won't let them down, VEGA's combination of proven technology and hands-on partnership delivers that reliability, each and every time.

Miguel Petersen
Vega Controls SA (Pty) Ltd
Tel. +27 11 795 3249
miguel.petersen@vega.com www.vega.com



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Versatile CTD Transmitter

The CTD Transmitter - MCTL is a versatile device used in applications such as drinking water systems, surface water monitoring, marine research, environmental monitoring, and hydrological studies.

It is capable of simultaneously measuring water temperature, depth, and salinity.



Key Functions

- **Conductivity:** Tracks electrical properties to find salt levels.
- **Temperature:** Logs thermal profile changes across water columns.
- **Depth/Pressure:** Uses hydrostatic pressure to determine immersion depth.

Core Applications

- **Water systems:** Used in drinking water networks and surface water evaluation.
- **Environmental tracking:** Deployed for marine research and general ecological water checks.
- **Data value:** Calculates water properties like salinity and density via direct sensor feedback.

Raymond Karsten
Instek Control (Pty) Ltd
Tel. +27 12 998 6326
info@instek.co.za www.instek.co.za

High Performance Linear Guides



Advanced polymer manufacturer igus continues to innovate in its ongoing quest to replace traditional lubricated linear guides with its drylin polymer technology which vastly improves machine reliability and no lubrication means it contributes to safer cleaner usage with no risk of contamination.

Linear guides are essential in machines that move along fixed axes where traditional systems rely on grease and oil.

Friction at the bearing-guide interface of these systems is the leading cause of premature failure, while lubricants themselves often introduce contamination risks in sensitive sectors such as food processing and pharmaceuticals.

According to igus South Africa's Juan-Eric Davidtz the drylin linear guides address these issues by employing tribo-optimised iglidur polymers that glide smoothly across corrosion-free surfaces without lubrication.

The principle of "gliding instead of rolling" in these circumstances eliminates friction-related wear and ensures maintenance-free operation even under extreme conditions including dirty environments, submersion, chemical and temperature extremes.

"We also recently introduced PFAS-free and hygienic-certified linear guides including the world's first EHEDG-compliant system designed for food safety applications.

"Our hybrid roller carriages and compact locking carriages are also expanding the portfolio into precision positioning for consumer appliances and automotive interiors and some such as our SLX range can even handle loads up to 600 kilograms.

"Locally we have many customers in the packing, mining and heavy industries that require good mechanical and corrosion-resistance while steel, manufacturing and other industries require high hear resistance, dust and hygienic equipment.

"Industries like medical laboratories, as well as food and beverage users can adopt hygienic-certified systems aligned with international standards.

"We also assemble locally which means that lead times and delivery are shortened and technical assistance is available where necessary," says Juan-Eric.

He sums up that igus the combination of corrosion-free materials and tribo-optimised polymers dramatically improve durability and contribute to lower noise performance in environments where quiet operation is essential.

The modular design of the systems also allows for flexible installation across different rail profiles and pillow blocks which ensures that it can be used in diverse applications.

Ian Hewat
igus South Africa
Tel. +27 11 312 1848
ihewat@igus.net
www.igus.co.za

Modular UPS System Enhances Power Protection with Scalable, High-Availability Architecture



Continuous power availability has become increasingly important as organisations depend on digital infrastructure to keep operations running.

In critical facilities - from data centres and healthcare facilities to financial institutions and industrial environments - critical systems demand uninterrupted power, simple maintenance and the flexibility to grow as requirements evolve.

Legrand South Africa's new TriMOD three-phase modular uninterruptible power supply (UPS) with a highly adaptable architecture that combines resilience, scalability and ease of service, has been developed to meet these needs.

Legrand's fifth-generation TriMOD UPS range, available in ratings from 10 to 80 kW, features a modular design based on independent single-phase power modules.

Unlike conventional modular UPS systems, this advanced design enables multiple input and output configurations within a single cabinet, allowing installers and specifiers to configure systems for a wide variety of applications, while simplifying installation and allowing for future expansion.

One of TriMOD's key advantages is its modular scalability that provides greater flexibility for changing operational requirements. Customers can increase capacity incrementally by adding lightweight power modules as demand grows, rather than having to replace the complete UPS.

The compact and lightweight power modules are designed for easy transportation, installation and servicing.

Maintenance is further simplified through hot-swappable power modules and battery drawers, enabling servicing or replacement without interrupting power to critical loads.

This minimises downtime and reduces maintenance costs, while helping organisations maintain business continuity.

The design also enables multiple input and output configurations, including three-phase and single-phase combinations, allowing the same UPS platform to accommodate different installation requirements.

This flexibility is particularly valuable where facilities have mixed power distribution systems, or where future infrastructure changes are anticipated.

TriMOD's modular design also strengthens system reliability through multiple levels of redundancy. Individual power modules operate independently, ensuring that if a module requires replacement or experiences a fault, the remaining modules continue supplying power to the protected load.

Additional control board redundancy further eliminates single points of failure, enhancing overall system availability in critical applications.

Legrand has also focused on simplifying operation through an intuitive five-inch touchscreen human-machine interface.

The display provides real-time system monitoring, historical alarm logs and predictive diagnostic capabilities that assist maintenance teams in identifying potential issues before they affect operations.

This proactive approach improves reliability and ensures more efficient maintenance planning.

The system delivers online double-conversion protection with efficiency of up to 96.5%, rising to 99% in Eco Mode, enabling organisations to reduce operating costs, while maintaining high levels of power protection.

Compatibility with generator systems and configurable battery backup options further enhance its suitability for demanding commercial and industrial environments.

TriMOD has been designed with sustainability in mind. Legrand incorporates circular economy principles into product development, focusing on repairability, component separation and extended product life.

Digital documentation and monitoring tools further reduce paper usage, while supporting preventative maintenance and lifecycle optimisation.

Legrand's comprehensive technical support capability includes project design assistance, installation supervision, commissioning, preventative maintenance programmes, operator training and emergency service support.

Internal Sales
Legrand SA
Tel. +27 11 444 7971
legrand.south-africa@legrand.co.za



Decarbonising the Energies and Chemical Industry Without the Risk

Africa's energies and chemical industry, like its peers across the world, is faced with quite the decarbonisation challenge. Stricter ESG demands, shifting investor expectations, rising energy costs, and unstable electricity supply are piling pressure on operators to cut emissions while keeping operations safe and profitable.

But, says Prevashen Naicker, Segment Director: Energy & Chemicals, SSA at Schneider Electric, the challenge is not whether companies should decarbonise, but how they do so without compromising production, reliability or profitability.

"Decarbonisation shouldn't be viewed as a compliance exercise but rather a structured business transformation journey that improves operational performance while reducing carbon intensity."

Sustainability and profitability can coexist

Many energies and chemical operators today continue to associate decarbonisation with costly greenfield projects or complete plant overhauls. In reality, significant gains can be achieved by improving the efficiency of existing assets.

"The first step is certainly not a forklift exercise; organisations should understand where energy is being used, where losses occur and how digital technologies can optimise what already exists," says Naicker.

"This is where monitoring solutions like our EcoStruxure Power Monitoring Expert has an important role to play. Operators can identify abnormal consumption, energy losses and system inefficiencies.

"We've found it can deliver energy reductions of between five and fifteen percent without making changes to production processes.

"Also, for those organisations managing ageing brownfield facilities, these efficiency improvements represent some of the quickest and lowest-risk opportunities to reduce both operating costs and carbon emissions," he adds.

Digitalisation creates the foundation for decarbonisation

While improving energy efficiency is an important first step, Naicker believes the real transformation comes from digitising industrial operations.

Modern automation platforms, advanced process control and real-time operational visibility enable organisations to optimise production continuously rather than relying on periodic manual interventions.

"Digitalisation allows operators to make better decisions faster," he says.

"Whether it's reducing flare gas, improving process yields, lowering energy intensity or implementing condition-based maintenance, better data enables better outcomes."

Schneider Electric supports this transition through integrated automation and digital platforms that modernise legacy distributed control systems (DCS), improve asset performance and reduce unplanned downtime.

Additionally, condition-based maintenance contributes to decarbonisation by identifying equipment issues before they become failures, reducing unnecessary maintenance activity while avoiding the emissions and production losses associated with unexpected shutdowns.

Building a roadmap that delivers measurable value

Today's most successful decarbonisation programmes begin with realistic business priorities rather than ambitious technology wish lists.

"Every business exists to create value. The roadmap must begin with projects that deliver measurable operational improvements while supporting longer-term sustainability objectives," explains Naicker.

"Rather than diverting investment solely towards future technologies, we encourage organisations to develop phased transformation roadmaps that begin with begin with lowrisk efficiency initiatives before progressing towards larger decarbonisation programmes.

"Success should be measured using clear operational indicators such as energy intensity, carbon emissions per tonne of production, operating cost savings and overall asset availability," he explains.

A trusted partner for industrial transformation

Looking ahead, Naicker expects Africa's industrial sector to become increasingly connected, intelligent and powered by hybrid energy systems that combine grid electricity, renewable energy, battery storage and, eventually, green hydrogen.

At the same time, AI, advanced analytics and integrated automation will play an increasingly important role in helping operators optimise increasingly complex industrial environments.

Schneider Electric sees its role as helping customers bring these technologies together through an open, interoperable platform that integrates power management, industrial automation and digital services into a single operational ecosystem.

"Our goal is to help organisations decarbonise at scale without compromising safety, reliability or profitability. By taking a phased, digitally enabled approach, businesses can reduce emissions while becoming more competitive, resilient and prepared for the future," concludes Naicker.

Prevashen Naicker
Schneider Electric
Tel. +27 11 254 6400
prevashen.naicker@se.com
www.se.com/za/en/

Modernising Acid Cooler Protection Without Disrupting Production



Omniflex has supplied an advanced anodic protection control system to South African phosphate producer Foskor, helping modernise the company's acid cooler infrastructure while maintaining continuous operation during the upgrade.

The project involved replacing a long-serving legacy transformer rectifier (T/R) system used to protect acid coolers in Foskor's phosphoric acid production process.

Rather than replicating the existing installation, Omniflex delivered a distributed PowerView CP solution that combines programmable transformer rectifiers with distributed control system (DCS) integration and comprehensive remote monitoring capabilities.

Acid production environments place significant demands on plant equipment, making reliable anodic protection essential for extending asset life and maintaining efficient production.

However, upgrading these systems can be challenging, particularly where production cannot be interrupted and new equipment must integrate seamlessly with existing infrastructure.

"Many industrial facilities rely on legacy protection systems that continue to perform an essential role, but modernising them without disrupting production can be a significant challenge," said Ian Loudon, International Sales Manager at Omniflex.

"This project demonstrates how distributed control and remote monitoring can provide a practical upgrade path, giving operators greater visibility of system performance while reducing maintenance requirements and extending the life of critical process assets."

The distributed architecture positions T/R units close to the acid cooler tanks, reducing installation costs and cabling requirements while allowing engineers to monitor performance remotely.

Engineers can securely access operational data from anywhere, enabling faster fault diagnosis, simplified trouble-shooting and reduced maintenance costs.

Lebo Vries, Instrumentation Engineering Manager at Foskor, commented: "Omniflex delivers an excellent product helping us to cost effectively upgrade our acid cooler transformer rectifiers with programmable control."

Following careful planning, phased implementation and comprehensive testing, the upgraded system now provides reliable anodic protection while supporting uninterrupted plant operations.

The installation incorporates dual transformer rectifiers per panel, PowerView CP control and both manual and DCS-controlled operation, creating a flexible platform that supports long-term operational reliability.

Ian Loudon
Omniflex (Pty) Ltd
Tel. +27 31 207 7466 sales@omniflex.com



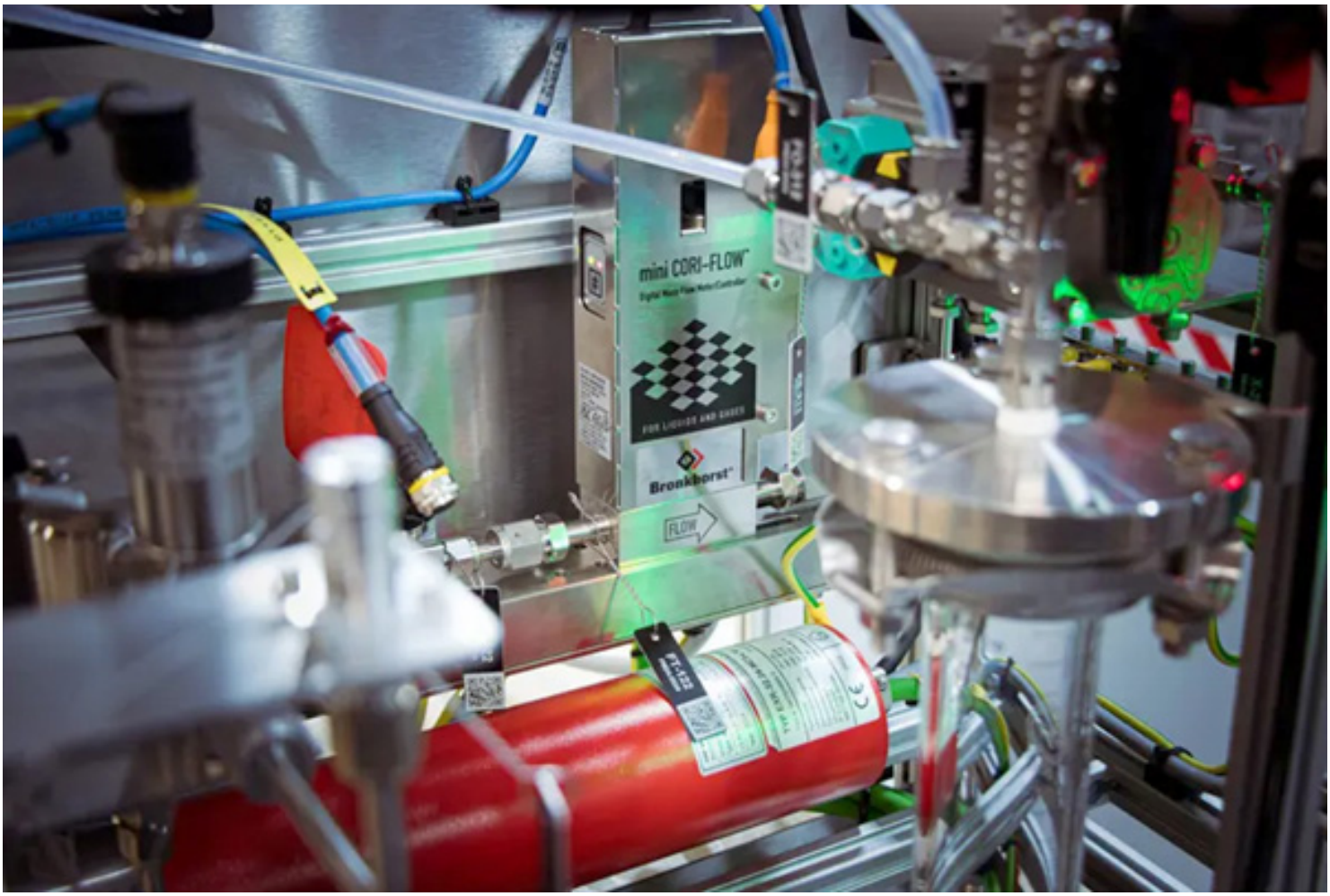
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Using a Flow Meter Instead of a Weighing Scale for



If we talk about dosing ingredients, like flavourings and fragrances, often the first measuring instrument to come in mind is the weighing scale, independent from whichever industry you work in. But why not use a flow meter instead?

I hear you think… a flow meter? Yes, a mass flow meter is an in-line weighing method and can offer several benefits compared to a conventional weighing scale, especially when it comes to processes including dosing ingredients.

Inline weighing makes it possible to dose additives very fast and gives you the possibility for a semi-continuous process.

Weighing scale versus mass flow meter

Let's start with the scale: a scale offers a static measurement. It will need a few seconds to settle to stabilize for good accuracy and repeatability.

When a liquid is sloshing and needs to settle, additional time can be needed.

In the dosing process the ingredients are dosed step-by-step as in a sequential process.

It is not possible to add multiple additives at the same time using only one weighing scale.

You can, when using a flow meter as inline weighing method. If you combine a mass flow meter with a pump or valve, you can dose multiple ingredients simultaneously.

This way you create a semi-continuous dosing process instead of a batch process.

Besides that, by using this combination of flow meter/pump you create a direct controlled process, meaning the flow meter can adjust the pump speed directly.

A batch process is somewhat easier to engineer. However, you need to control, produce, and check each batch with risks in batch-to-batch inconsistency, production losses, availability, and required storage space for (premixed) additives.

Changes in product can lead to considerable overhaul and set-up costs.

Semi-continuous processes inherently offer a good possibility to reduce waste or excess inventory and to complete more products in less time.

Spotting errors and correcting them as well, are simplified because this is done directly, even during the dosing cycle itself. This enables a more continuous process.

Dosing process with a scale

To enable a fast filling time with a scale, high concentrate-additives are often pre-mixed in a batch tank before it is dosed into the production process.

Between different batches, the premix tanks and parts of the bottling system must be emptied and cleaned to prevent cross-contamination and ensure hygienic standards.

It is also important to prevent any (mechanical and physical) contact with the scale during the weighing procedure in order not to disturb the accuracy of the scale.

High Accurate Dosing

If you mix a dozen of ingredients or have a long processing time in your dispenser, ingredients will evaporate to some extent. The evaporating rate depends on the size of the bottle opening, temperature, and type of carrier liquid.

Use of volatile, hazardous or smelly additives result in potential environmental odour nuisance and sometimes more severe health, safety and environment (HSE) risks. Additional safety-, ventilation and mechanical measures are often required to contain such "source of release".

Benefits of in-line weighing with mass flow meters

Faster dosing

Inline mass-dosing does not need premixing. It offers true 'on demand bottling' in the final stage of the production process or even directly into the destination container or bottle.

Small doses of additives in milligrams or grams can easily be added in less than a second. Modern (mass) flow meters with integrated high-speed dosing (PID) controllers are very accurate. They can be used as inline scale from kilograms down to milligrams directly controlling a valve or pump.

They enable smooth and easy dosing of single- or multiple ingredients in parallel, fast and with the highest repeatability.

System availability

Overall system availability is increased because traditional batch-related cleaning is not required to the same extend as before. Batch-to-batch deviations are prevented due to the nature of an inline process.

The dosing quality is excellent because delicate corrections are executed during the dosing process itself, e.g. to cope with pressure, viscosity, and temperature changes.

Semi-continuous (cluster) dosing of ingredients

A unique feature of inline mass dosing is the possibility to dose multiple ingredients in one clustered dosing step, in parallel, resulting in a semi-continuous process set up.

The integrated high-speed on-board dosing controller uses intelligent dosing firmware to enable the highest accuracy and speed with automatic correction mechanisms without a direct need for a complex PLC program.

Risk reduction

Since the dosing process can be done very fast, strong reduction in evaporative releases can be realised. This can result in a considerable risk reduction, even up to relaxation of the safety measures as described before.

Of course, just like many other technologies; mass flow-based inline dosing is somewhat depending on specific system parameters. Your process parameters will determine which of the mentioned benefits are applicable to you.

Henning Springer
MECOSA (Pty) Ltd.
Tel. +27 11 257 6100
measure@mecosa.co.za www.mecosa.co.za



Design Lubrication-Free Applications in Seconds



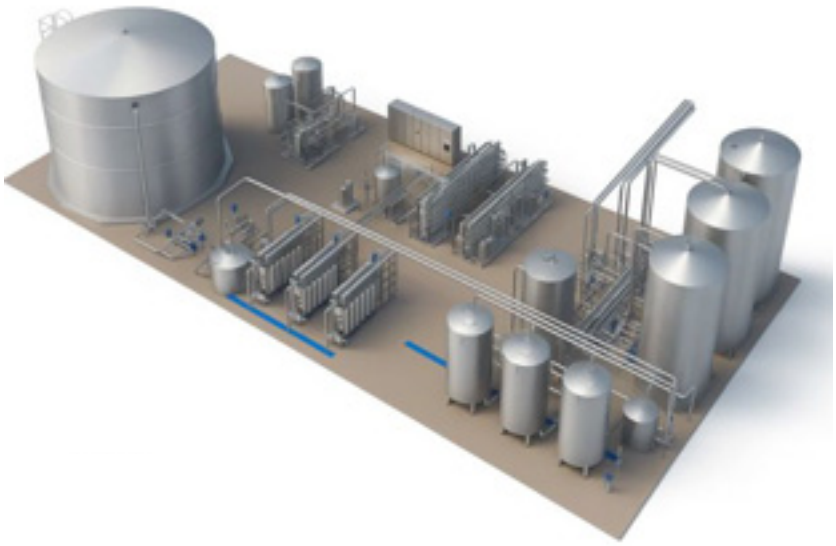
igus point-and-shoot igusGO App allows users to use their mobile phones to photograph equipment and immediately get information that can help improve what moves with a lubrication free alternative.

It uses a cloud platform with Artificial Intelligence to show the optimisation potential of motion plastics for over 450 applications in just a few seconds.

Whether it's a coffee machine, a bottling plant or an excavator it provides recommendations on where igus products like bushes, linear bearings, spherical bearings or cable carriers can be incorporated.

Ian Hewat
igus South Africa
Tel. +27 11 312 1848
ihewat@igus.net www.igus.co.za

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- UV and Ozone Treatment
- CIP Systems
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- Complete Turnkey Water Treatment Plants

Why choose Centec GmbH?

- Modular, customised process solutions
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- Hygienic design for Food, Beverage and Pharmaceutical industries
- Engineered for maximum efficiency and long-term reliability
- Designed and manufactured in Germany

From raw water treatment to ultrapure water production, Centec GmbH delivers complete water treatment solutions that improve process performance while reducing maintenance, operating costs and resource consumption.

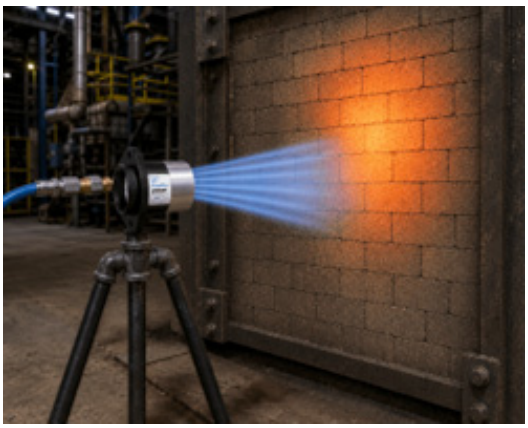
Raymond Karsten
Instek Control (Pty) Ltd
Tel. +27 12 998 6326
info@instek.co.za
www.instek.co.za

How Air Amplifiers Extend Campaign Life and Reduce Unplanned Downtime

Hot spots on refractory linings are a routine challenge in high heat industrial operations.

However, early intervention using noncontact cooling can significantly reduce thermal stress and extend refractory life.

This article examines how EXAIR Super Air Amplifiers provide targeted cooling to stabilize localized hot spots, reduce erosion, and deliver measurable uptime gains.



Refractory performance is central to furnace reliability. Yet even well designed systems experience localized thermal anomalies during operation.

These hot spots—often caused by burner impingement, scale accumulation, or airflow variation—accelerate wear and can trigger premature shutdowns.

Addressing them quickly and safely is essential for maintaining campaign length.

Targeted, noncontact cooling stabilizes refractory hot spots before they develop into cracks or spalls.

Localized Hot Spots: A Persistent Operational Risk

Refractory walls rarely heat uniformly. Small variations in process conditions can create concentrated zones of elevated temperature. These areas experience:

- Increased thermal gradients
- Accelerated microcracking
- Localized spalling
- Reduced structural integrity

If left unmanaged, hot spots often become the origin point for larger failures that force unplanned outages and early relines.

EXAIR Super Air Amplifier Technology

The EXAIR Super Air Amplifier uses a small volume of compressed air to entrain and accelerate large quantities of ambient air.

The resulting highvelocity stream is directed at the refractory surface, rapidly removing heat without physical contact.

Key advantages include:

- Noncontact cooling that avoids mechanical disturbance
- Highvolume airflow for fast thermal reduction
- Precise targeting of localized hot spots
- No water, no quench shock, no contamination risk

By lowering peak temperatures and smoothing thermal gradients, the Air Amplifier reduces stress concentrations that drive premature refractory failure.

Operational Impact and Economic Value

Even modest extensions in refractory life can deliver substantial financial benefits. Improved hotspot management supports:

- Longer campaign duration
- Fewer emergency shutdowns
- Deferred reline costs
- More predictable maintenance planning
- Increased production continuity

For many facilities, these gains translate into thousands of dollars saved through avoided downtime and reduced maintenance interventions.

Conclusion

The EXAIR Super Air Amplifier offers a practical, low maintenance method for mitigating refractory hotspot damage.

Its ability to deliver targeted, noncontact cooling makes it a valuable addition to standard furnacemonitoring protocols.

For operations where hot spots routinely shorten lining life, airamplification cooling represents a simple upgrade with significant operational impact.

Terri Carlson
ETEST
Tel. +27 82 781 8557 terri@etest.co.za



Waste Heat Recovery Boiler and Economiser Interes



As pressure mounts on South African manufacturers to reduce energy consumption and manage carbon taxation, interest in waste heat recovery systems is increasing.

According to Dennis Williams, Commercial Director of specialist steam and boiler operations and maintenance service provider Associated Energy Services (AES), although economisers have not yet been widely adopted in South Africa's low-pressure industrial steam sector, companies are now revisiting these technologies.

Economisers are pressure vessels that are external to the boiler circuit and are typically retrofitted to recover lower temperature, lower grade heat into heated water, which is then included in boiler feedwater.

Unlike economisers which focus specifically on recovering residual heat from boiler exhaust gases, waste heat recovery boilers capture energy from multiple sources for a variety of applications.

The coal conundrum

The suitability of an economiser depends on the boiler configuration, the fuel used and contaminants present in the flue gas stream, says Williams:

"We are particularly concerned with the sulphur content which can result in sulphuric acid dew point corrosion. However, chlorine is also a concern, as is ash content.

All can impact on longevity, flow rates and the fouling of an economiser."

Coal remains the dominant fuel source at many local industrial facilities and recovering waste heat from coal-fired boilers presents unique technical challenges. The key limitation is maintaining flue gas temperatures above critical dew point thresholds, to avoid corrosive acid condensation.

Referring to a typical 10-bar boiler, Williams explains that flue gases leave the combustion zone at between 800°C and 900°C before transferring heat to the boiler water. Exhaust temperatures exiting the boiler are generally between 210°C and 230°C:

"There is still useful energy in that. The water coming in may be 60°C or 70°C. We recover additional temperature in the feedwater, which then goes to the boiler."

However, if flue gas temperatures fall into the 130°C to 160°C range, sulphur dew point corrosion can rapidly damage expensive equipment. Load fluctuations can further complicate operation:

"If an economiser is taking that lower flue gas temperature, this results in lower economiser surface temperatures and increases the likelihood of dew point corrosion."

Williams notes that poor water treatment and corrosion are the primary reasons for local economiser installations

t Heats Up

failing. Oxygen in untreated water can cause internal pitting of thin-walled tubes, while sulphur-related corrosion attacks external surfaces.

Retubing damaged economisers is expensive, often leading to companies bypassing them to avoid costly repairs.

"This scenario can best be avoided by a combination of chemical water treatment and deaerator use, which effectively improves the efficacy of oxygen removal before the economiser circuit. However, this is a 'catch-22' situation - as hotter inlet water changes the dynamics of the economiser as a heat exchanger," Williams adds.

The economics of economisers

AES approaches each potential installation by first determining whether it is technically viable and economically justified. Detailed assessment of clients' specific plant operations and processes, available waste heat streams and potential energy savings are compared to the required capital investment.

"The economics are shifting. Currently, increasing fuel costs compounded by carbon tax are potentially impacting the cost-value associated with burning coal. To avoid paying a lot of carbon tax, you must reduce the amount of coal burnt. An economiser therefore becomes more economically justifiable."

However, retrofitting an economiser often requires investment in modifications. Additional pressure drops may necessitate upgrades to induced-draft fans, motors and feedwater pumping systems.

Beyond economics

Successful implementation depends on aligning technology choices with long-term operational and sustainability goals, rather than focusing solely on short payback periods.

So, while financial returns remain important, Williams believes that sustainability objectives are increasingly influencing investment decisions:

"Once you have made the people changes, got the equipment working effectively, combustion working well, water treatment up to specification and the boiler running optimally, you still lose energy up the stack – amounting to a financial cost.

That said, companies may not look at the impact purely from a financial perspective. Those on a drive for zero waste, complete water recycling and energy efficiency can view the installation of heat recovery systems as a step toward achieving their sustainability goals," he points out.

However, Williams stresses that economisers should never be viewed as simple 'bolted-on systems':

"It is easy just to view an economiser as an ancillary vessel - but one is dealing with liquid and gas flows that are hazardous, so it needs to be understood in terms of management, safety and compliance."

As pressure equipment, economisers are subject to regulatory considerations including registration, permitting, inspection and ongoing maintenance obligations.

Equally important is the management of operational change:



"Trained personnel may understand the plant as it is. However, put an economiser on the back and water temperatures are running higher, presenting a material safety risk if operators are not fully aware of the revised system."

Moving on from plug and play

Williams believes many economiser installations failed because companies underestimated the maintenance and technical management required to sustain performance:

"They took a 'plug-and-play' approach and assumed that they were getting the benefits - until it failed. Partnering with AES turns this around.

We combine over 25 years of operational expertise in managing people, combustion and fuel sources with our maintenance experience and Remote Monitoring System (RMS). This holistic approach mitigates risk, ensuring that critical parameters including temperature, pressures, flows and boiler loads remain within safe operating limits," he concludes.

Dennis Williams
Associated Energy Services (AES)
Tel. +27 21 532 3381
d.williams@aes-africa.com

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