What's New in PROCESSING

Instrumentation, Process Automation, Chemical, Electrical, Analytical



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instek CONTROL



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

Bringing Better Measure South Africa

How Instek Control (Pty) Ltd is expanding the possibilities of

In industrial processing, accurate measurement is fundamental to effective control, operational efficiency and consistent product quality. Yet finding the right instrumentation solution is not simply about selecting a product. It is about finding the right balance between performance, reliability, application requirements and cost.

Recognising an opportunity to bring greater choice to the South African market, Instek Control (Pty) Ltd identified the potential of Bass Instruments, a Turkish manufacturer of industrial measurement and control equipment, and introduced its solutions to local industry.

Established in 2006, Bass Instruments has developed a broad product range covering flow, pressure, level, temperature and process analysis, alongside control valves and related instrumentation.

Its portfolio serves a variety of industrial applications, providing options for businesses looking for capable measurement technology without automatically moving to higher-priced alternatives.

For Instek Control (Pty) Ltd, the decision to bring Bass Instruments to South Africa was driven by the opportunity to offer customers an affordable, high-quality alternative to instrumentation currently available in the market.

Expanding choice without compromising on quality

Industrial businesses face constant pressure to improve performance, manage operating costs and maintain reliable processes. Instrumentation plays a critical role in achieving these objectives, whether monitoring flow in a water treatment facility, measuring levels in a storage tank or controlling process variables in a production environment.

Bass Instruments offers a broad range of technologies to address these requirements.

Its portfolio includes conventional measurement instruments as well as solutions such as ultrasonic flowmeters and radar-based measurement systems, opening possibilities across different industries and applications.

The value lies not only in the technology itself, but also in having access to suitable alternatives when specifying equipment for a project.

A wider choice allows engineers and plant operators to evaluate solutions against their technical requirements, operational conditions and budgets.

ment Solutions to

industrial measurement through Bass Instruments

Since introducing Bass to the local market, Instek Control (Pty) Ltd has seen highly positive customer feedback, with numerous projects incorporating Bass Instruments instrumentation completed across South Africa.

This growing application experience is an important indication of the opportunity the brand presents to local industry.

From supplying instruments to improving processes

The introduction of Bass Instruments reflects Instek Control (Pty) Ltd.'s broader vision of being more than an instrumentation supplier.

The company is focused on helping customers improve process performance through the combination of instrumentation, automation and engineering expertise.

This approach begins with understanding the application and the challenges a customer needs to address. Selecting suitable technology is one part of the solution; ensuring it meets the process requirements and contributes to the desired outcome is equally important.

By bringing together an expanding technology portfolio and application-focused support, Instek Control (Pty) Ltd aims to give customers access to practical solutions that support reliable measurement, effective process control and continuous improvement.

As South African industry continues to seek greater efficiency, reliability and value from its operations, the availability of quality instrumentation alternatives creates new opportunities for both engineers and end users.

For Instek Control (Pty) Ltd, the objective remains clear: to help industry make better-informed instrumentation choices and translate measurement into meaningful process improvement.

Measure | Control | Improve

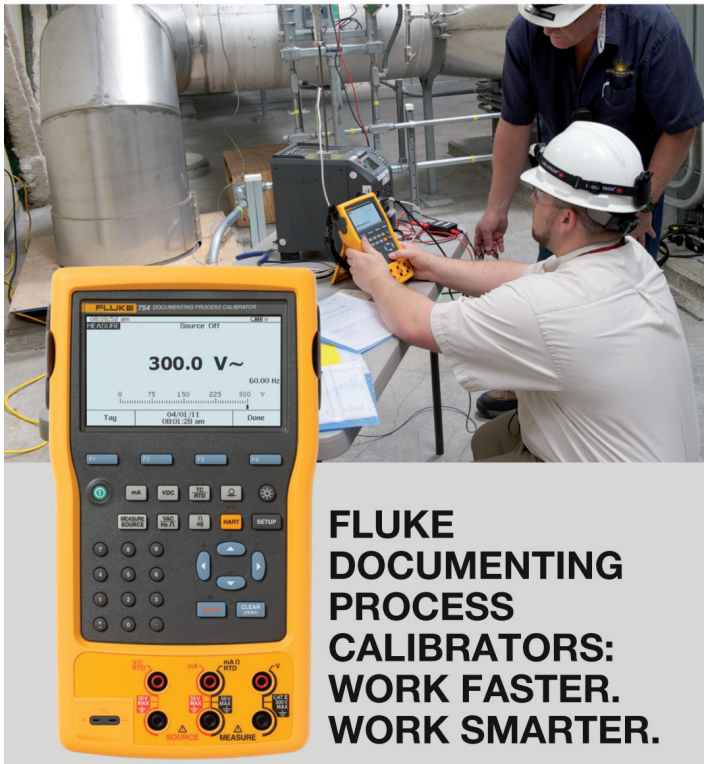
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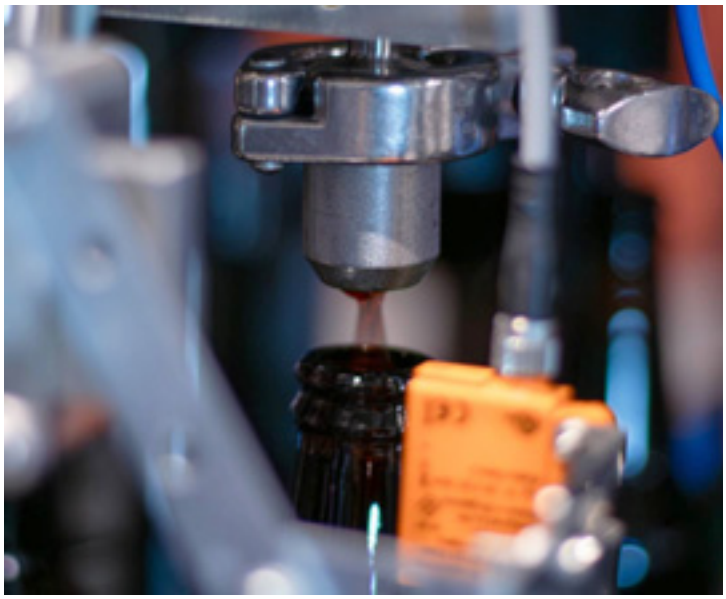
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Dosing Liquids at a Low Flow Rate



What is important to know if you're dosing liquids at a low flow rate? In many production processes, additives represent only a small fraction of the final product. Yet they often have the biggest impact on quality.

Whether you're adding flavourings, fragrances, or catalysts, accurate liquid dosing helps ensure product consistency and minimize waste.

A common misconception is that a dosing pump alone guarantees the correct amount of liquid.
In reality, factors such as pressure variation, wear, air bubbles, and temperature changes can significantly affect dosing accuracy.

Deviations can become substantial when flow is not independently measured.

By incorporating flow measurement into the dosing process, manufacturers gain:

- Better dosing accuracy
- Reduced additive consumption
- Improved process quality

The lesson? You cannot control what you do not measure.

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New and Improved Electronic Flow Control for Smarter Compressed Air Use

A newly redesigned EFC™ Electronic Flow Control system, engineered to help South African manufacturers significantly reduce compressed air consumption in automated processes.

The upgraded EFC integrates a high sensitivity photoelectric sensor with programmable timing control, ensuring compressed air is supplied only when required and eliminating waste during idle or transition periods on production lines.

The latest version features asynchronous timing, giving users independent control over ON and OFF cycles for more precise air management across varied applications.



It also includes external programming access, allowing operators to adjust settings without opening the enclosure—ideal for fast-paced industrial environments where downtime must be minimised.

The unit's updated industrial-grade housing offers improved durability and a modern aesthetic suited to South Africa's manufacturing and processing sectors.

A compact photoelectric sensor detects targets up to 1 metre away, triggering a fast acting solenoid valve that manages compressed air delivery.

With capacity to control flows up to 350 SCFM, the EFC is well suited to blowoff, drying, cooling, conveying, and static elimination operations commonly found in food processing, automotive, packaging, and general manufacturing facilities.

The EFC forms part of EXAIR's broader compressed air optimisation range, which supports plants in reducing energy costs and improving system efficiency.

Complementary products include digital flowmeters for realtime air usage monitoring, ultrasonic leak detectors for identifying costly air leaks, and digital sound level meters for assessing workplace noise exposure.

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Ex Flameproof Motor Range for Surface and Underground Environments



BMG recently launched its new Synergy Ex IE3 range of flameproof motors for demanding mining and industrial sectors. This robust range has been developed to provide reliable power and appropriate protection for operations in hazardous surface and underground environments.

"Power, protection and reliability are important requirements in hazardous-area motor applications. It is critical that the motor selected, is suitable not only for the driven equipment, but also for the specific conditions in which it will operate," says Graeme Neilson, Business Unit Manager, Electric Motors, BMG.

"Synergy Ex motors are designed for applications where selection involves more than matching power and speed requirements. In hazardous areas, safety, certification, correct area classification and proven reliability are essential considerations

"A motor failure in a mine or industrial plant can mean considerably more than the cost of a replacement motor. Lost production, maintenance expenditure and extended downtime can affect the efficiency of an entire operation.

"Our technical team assists customers in matching the motor to the hazardous-area classification, gas group, temperature class, power, speed, enclosure protection and duty requirements of the installation."

The Synergy Ex range – with motors available from 0.75 kW to 250 kW in 2-, 4- and 6-pole versions - features robust construction for demanding applications, high reliability, long service life and excellent thermal performance.

Class H insulation and IP66 enclosure protection ensure safe use in challenging operating conditions, also reducing downtime and maintenance requirements.

These motors are suitable for many applications in underground and surface coal, platinum, gold and copper mines, as well as other mineral operations. In industry, Synergy Ex motors can be used to enhance performance of pumps, fans, compressors, conveyors and crushers.

Mounting flexibility for this range is also available where required. A flange ring can be added to convert a B3 motor to a B3/5 motor, without the need to remove the end shield. This can assist where the installation requires flange mounting in addition to foot mounting.

Final motor selection must be based on the relevant area classification and operating conditions, with the applicable certification and technical documentation checked before installation. This selection process is particularly important because hazardous-area suitability is application-specific.

Factors, including the nature of the potentially explosive atmosphere, the gas group, permissible surface temperature, installation environment and operating duty, must all be considered before equipment is specified.

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MSV Instrumentation & Supplies (PTY) LTD is a proud distributor of Monitran products in South Africa.

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For more information on the Monitran range and tailored condition monitoring solutions, contact us today.

sales@msvinstrumentation.co.za
087 822 1645.

New High-Performance Inverter



Omron has introduced the R1 (3G3R1) variable speed drive, the newest and most powerful member of its inverter family. Scaling from 0.4 kW to 630 kW at 400V and engineered for a 10-year design life, the R1 extends Omron's drive portfolio into an even wider range of applications.

The new R1 is ideal for demanding, high-power applications, with no relearning curve for existing M1 users.

Many machine builders face two very different control challenges within a single machine: straightforward horizontal motion is one thing, but holding a heavy load steady on a vertical axis is another, as well as controlling motion precisely from zero speed the instant a brake releases.

The R1 is purpose-built for that hard part of the job, supporting applications such as hoists, stacker cranes, press machines, winding machines, rolling mills and machine tools, alongside fans, pumps and compressors.

For customers already using Omron's M1 inverter, moving up to the R1 requires no new training. The two products share the same parameter structure, terminal names and functions, and communication addressing, and use the same programming environment, including Sysmac Studio and Drive Programming customisation, so existing PLC programs and function blocks carry over directly.

Beyond raw power, the R1 is designed to reduce two of the most common sources of lost time on the plant floor: unplanned downtime and slow commissioning.

Predictive maintenance features – including IGBT life warnings, cooling airflow alerts, and full traceback data – flag potential issues before they stop a line.

A new multi-function keypad, available in 10 languages with Bluetooth and USB connectivity, lets technicians at any site commission and diagnose the drive without a language barrier.

The R1 comes with built-in STO SIL3 PLe functional safety as standard, removing the need for separate safety hardware, and is rated to withstand harsh industrial environments (IEC 60721-3-3, Class 3C2), with an optional mounting adapter for external, IP55-rated cooling. It features Modbus RTU connectivity as standard and is certified to CE, UL, cUL/CSA and RoHS2.

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Need Better Control Over Your Industrial Heating Process?



When precise, stable and responsive power control is required, the Three-Phase SCR Thyristor Power Controllers offer a reliable solution. Available in a range from 30A to 570A, these controllers provide smooth, adjustable power control with multiple input options, soft-start functionality and 0–97% output control.

Suitable for demanding applications across plastics manufacturing, furnace and heat-treatment, and industrial food processing, where consistent and controlled heating is essential.

With built-in monitoring and protection features, SCR Thyristor Controllers are designed to provide dependable power regulation for a wide range of three-phase industrial applications.

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When Level Measurement Cannot Afford to Drift





In hygienic processing, level measurement is not just about knowing what is inside the tank. It can influence:

- Process control
- Product quality
- Cleaning cycles
- Production efficiency
- Maintenance requirements

That is why the design of the sensor matters. The Anderson-Negele SL EVO has been engineered around long-term measurement stability. Its dual-diaphragm design eliminates the traditional atmospheric vent and helps protect the measurement system from condensation and moisture ingress. It also provides:

- 0.2% URL calibrated accuracy
- ±0.2% URL stability for a full year minimum
- Integrated temperature compensation
- Tank linearisation
- 0.5-second response time
- 4–20 mA, IO-Link and HART 7.0

With applications including raw milk storage and beer maturation, it is designed for the realities of hygienic processing.

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Paper Might Carry the Message but Pressure



The pulp and paper industry plays a significant role in South Africa's economy, contributing to both employment and exports. South Africa's forests, paper mills, and packaging plants have positioned the country as a key producer of pulp and paper products on the African continent.

With annual production exceeding 2.1 million tons of paper and board and exports valued at approximately R10 billion, the industry has a considerable economic footprint. Operations are primarily concentrated in provinces like Mpumalanga, KwaZulu-Natal, and the Eastern Cape, where natural forests and vast plantations form the backbone of pulp production.

Despite its strength, the South African pulp and paper industry faces significant operational challenges. These include maintaining efficiency in high-pressure processes, managing water usage in a water-scarce country, and ensuring equipment reliability in harsh production environments.

Given the high energy costs and environmental pressures, mills are constantly seeking innovative solutions to improve process efficiency and minimise downtime.

Accurate and reliable pressure measurement is critical in achieving these goals, particularly in processes like chemical pulping, paper pressing, and wastewater management.

VEGA's VEGABAR pressure transmitter range provides the industry with a robust, reliable, and adaptable solution to overcome these challenges, ensuring improved operations across mills in South Africa.

Paper might carry the message; pressure carries the process

Pulp and paper manufacturing is an intricate, multi-stage process that depends on consistent monitoring and control of pressure at every stage.

From chemical pulping to the paper pressing and drying phases, pressure variations can severely impact product quality, energy consumption, and operational safety.

South African mills are often required to process large volumes of material while operating under high-pressure and high-temperature conditions, posing significant measurement challenges.

In chemical pulping, where wood chips are cooked in large digesters with chemicals like sodium hydroxide and sodium sulfide, precise pressure control is vital to ensure the correct cooking process.

Pressure inconsistencies can lead to poor-quality pulp or process interruptions, resulting in wasted energy and raw materials.

Additionally, the harsh conditions inside digesters, such as corrosive chemicals and extreme temperatures, place immense demands on pressure sensors.

Another challenge lies in the pressing and drying stages. During pressing, water is mechanically removed from pulp sheets, while the drying phase requires precise steam pressure management to ensure uniform drying.

Any fluctuations in pressure can cause product defects or inefficiencies, reducing throughput and increasing energy costs.

South Africa's pulp and paper mills also face significant challenges in wastewater treatment.

Pressure monitoring in settling tanks, filtration systems, and pipelines is critical for ensuring compliance with environmental standards, particularly in regions like KwaZulu-Natal and Mpumalanga, where mills operate near sensitive water sources.

Inaccurate pressure readings can lead to leaks, overflow, or

Carries the Process

suboptimal treatment, causing environmental damage and regulatory fines.

Pressure shapes more than just paper

VEGABAR pressure transmitters are designed to address the unique challenges faced by the pulp and paper industry.

Built for durability and precision, the VEGABAR range ensures reliable pressure monitoring in aggressive, high-temperature, and high-pressure environments, making it ideal for critical pulp and paper applications.

One of the standout products in the VEGABAR range is the VEGABAR 82 pressure transmitter.

Equipped with a ceramic-capacitive measuring cell, the VEGABAR 82 is particularly suited to the harsh environments of pulp digesters and chemical processing tanks. Its ceramic sensor offers excellent resistance to corrosion and abrasion, essential for withstanding the aggressive chemicals used in kraft pulping processes.

For South African mills operating in high-humidity and high-temperature conditions, the VEGABAR 82's stability and durability ensure long-term reliability, reducing maintenance needs and operational disruptions.

The sensor also provides high accuracy, delivering precise pressure measurements critical for maintaining optimal cooking pressure in digesters. This improves the quality of pulp while reducing chemical and energy consumption, helping mills optimise production costs.

In the pressing and drying stages of paper production, where steam pressure control is crucial, the VEGABAR 83 provides an ideal solution.

Featuring a robust metal measuring cell, the VEGABAR 83 withstands extreme temperatures and pressures commonly encountered in steam pipelines and drying cylinders.

Its high-temperature resistance, coupled with accurate measurements, allows operators to maintain consistent steam pressures, ensuring uniform paper drying.

For mills in KwaZulu-Natal, where energy costs can account for up to 20-30% of production expenses, efficient steam management enabled by VEGABAR 83 can significantly reduce energy consumption.

By preventing steam pressure fluctuations, mills can also minimise defects and increase throughput, improving overall productivity and profitability.

Wastewater treatment is a critical process in pulp and paper production, particularly in the South African context, where water scarcity demands efficient resource management.

Pressure measurement in wastewater treatment systems ensures optimal operation of pumps, filtration units, and settling tanks.

The VEGABAR 81 differential pressure transmitter is particularly effective for monitoring pressure drops in filtration systems, enabling operators to detect blockages or performance issues in real-time. Its chemical-resistant materials make it suitable for handling treated and untreated wastewater, ensuring long-term performance in harsh conditions.

By improving pressure monitoring in wastewater processes, South African mills can reduce water losses, optimise treatment efficiency, and comply with strict environmental regulations.

Pressure isn't just applied; it's mastered

The adoption of VEGABAR pressure transmitters brings significant benefits to pulp and paper mills in South Africa, addressing key operational and environmental challenges.

One of the primary advantages is improved process efficiency. The VEGABAR 82 and VEGABAR 83 deliver precise, real-time pressure measurements that allow operators to optimise production processes, from chemical pulping to steam drying

This reduces energy consumption, minimises material waste, and enhances overall product quality, a crucial factor for mills competing in both local and export markets.

The robust design of the VEGABAR range ensures reliable performance in the demanding conditions of pulp and paper operations. With corrosion-resistant ceramic and metal measuring cells, VEGABAR transmitters can withstand high pressures, temperatures, and aggressive chemicals, reducing maintenance costs and downtime.

This is particularly valuable in South Africa, where mills operate under tight production schedules and cannot afford frequent disruptions.

Environmental sustainability is another critical benefit. By enabling accurate pressure monitoring in wastewater treatment processes, VEGABAR transmitters help mills optimise water usage and comply with environmental regulations.

This is essential for mills operating in water-stressed regions, where responsible water management is a top priority.

Behind every perfect sheet is an invisible layer of control

VEGA's instrumentation integrates seamlessly with digital control systems, enabling mills to implement smart process monitoring and predictive maintenance strategies. This enhances operational visibility, allowing mills to identify and address potential issues before they impact production.

The pulp and paper industry in South Africa faces unique challenges, from maintaining efficiency in high-pressure processes to optimising water usage in a resource-scarce environment.

VEGA's VEGABAR pressure transmitters, including the VEGABAR 82, 83, and 81, provide reliable, precise, and durable solutions that address these challenges across critical production stages.

By improving pressure monitoring in chemical pulping, steam drying, and wastewater treatment, the VEGABAR range enables South African mills to enhance process efficiency, reduce operational costs, and achieve environmental compliance.

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More Than a Decade in the Making: Johnathan Kalula - Managing Director at VEGA Controls SA



More than a decade after he first walked through the door as an intern, Johnathan Kalula has been appointed managing director of VEGA Controls South Africa, effective 1st October 2026.

A career shaped by opportunity

Kalula joined VEGA for in-service training after earning his diploma from the Vaal University of Technology (VUT). Soon afterwards, he was seconded to customer Safripol in Sasolburg, where 18 months in the field shaped his approach to instrumentation.

A turning point came when then managing director, John Groom awarded him a bursary to complete his BTech. Rather than moving into a technical role, Kalula joined VEGA Instruments, the company's African export business, as an external sales engineer. "That opportunity opened doors I never imagined," he says.

Over the next eight and a half years, he travelled to more than 20 African countries, working with customers in mining, water, food and beverage, and oil and gas. "Those experiences taught me as much about people and business as they did about instrumentation".

The previous Managing Director, Frikkie Streicher, appointed Kalula as Africa Sales Manager approximately 18 months ago, prior to Kalula being interviewed for the Managing Director position.

For Kalula, this journey reflects what has kept him at VEGA. "Opportunities aren't determined by age or title. If you're willing to take responsibility, learn and deliver results, the company backs you."

Putting people first

Over the next 12 months, Kalula's first priority is the team. "Strong teams build great businesses. When challenges arise, you need to know the people around you have your back," he says.

He wants employees to feel empowered, supported and trusted to make decisions.

Customers are equally important. Many have supported VEGA since its days in a Roodepoort residential house and have watched it grow into the Lanseria facility it is today. "I want our customers to know that our commitment to supporting them has never been stronger," he says.

Across the continent, Kalula sees further growth potential. VEGA's local presence and the group's global strength position it to support customers wherever they operate. In South Africa, his focus is on maintaining stability and value amid rising competition.

Turning data into action

VEGA's flagship 80 GHz radar has become an industry benchmark, Kalula says. He also highlights the company's pressure range, which uses ceramic measuring cells developed and manufactured in-house.

Kalula is particularly enthusiastic about the new VEGASWING X. "Customers once saw level switches as simple on-or-off devices, but today, more is required from instrumentation," he says.

VEGASWING X provides the improved diagnostics, safety, easier commissioning and instrument-health visibility they demand, while helping reduce unplanned downtime.

Autonomous, cloud-connected IoT sensors offer another opportunity. By operating without conventional power or communications infrastructure, they enable continuous monitoring in remote locations while lowering installation costs.

"VEGA is no longer simply providing measurements," says Kalula. "We're helping customers turn data into action."

German engineering, African support

Kalula believes an instrument's support is as important as the product itself. "In Africa, business is built on customer relationships. A world-class product can only take you so far; the support behind it defines the value VEGA delivers," he says.

VEGA has invested in sales engineers and technical experts across Africa, supported by its Lanseria team.

He plans to strengthen this support through training, faster response times, a greater presence in strategic markets and local talent development.

"I'm a product of that philosophy. VEGA gave me opportunities early in my career and trusted me with responsibility. I want future generations of engineers and leaders to have the same opportunities."

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Africa's Next Mining Revolution Has Already

By Martin Jooste Sales Engineer – ifm South Africa



For more than a century, Africa's mining sector has been built on the strength of its people, natural resources, and engineering innovation. Today, however, a new revolution is underway.

Unlike previous industrial shifts driven by larger machines or deeper shafts, this transformation is powered by data, connectivity, intelligence, and automation.

Mining companies are increasingly recognizing that the future of operational excellence lies not only in extracting minerals efficiently but also in extracting value from operational data.

Intelligent sensors, connected devices, real-time diagnostics, and predictive maintenance are becoming the foundations of the modern mine.

From Reactive to Predictive Operations

Historically, many African mines have relied on preventative maintenance schedules and operator experience to manage equipment performance. While effective, these methods often result in unnecessary maintenance activities or unexpected failures.

The next generation of mining operations is shifting toward predictive maintenance. Connected devices now continuously monitor vibration, pressure, temperature, flow, and equipment condition.

Instead of waiting for a failure to occur, maintenance teams can identify signs of deterioration early and intervene before production is impacted. This transition represents one of the most significant opportunities for African mining companies seeking to improve asset availability while reducing maintenance costs.

In the future, plant managers may receive automated notifications indicating which pump, conveyor, crusher, or flotation cell requires attention days or even weeks before an actual breakdown occurs.

The Rise of the Connected Mine

The importance of intelligent sensors and IO-Link technology in providing not only process values but also diagnostic information, health status, and device parameters.

This capability is expected to drive the transition toward fully connected mining operations across Africa.

Future mines will increasingly feature:

- Smart conveyors with continuous condition monitoring
- Intelligent pumping stations with self-diagnostics
- Digitally connected process plants
- Real-time equipment health visibility
- Centralized operational dashboards
- Cloud-based analytics platforms

Rather than operators walking long distances to inspect equipment manually, critical information will be available instantly through control rooms, mobile devices, and enterprise systems.

Data Will Become the Most Valuable Resource

Traditionally, gold, platinum, coal, copper, and iron ore have been considered Africa's most valuable mining assets. In the coming decade, operational data may become equally important.

Every sensor, motor, valve, and instrument generates valuable information. When combined with advanced analytics and artificial intelligence, this data can reveal opportunities to optimize production, reduce energy consumption, improve safety, and maximize recovery rates.

The mining companies that successfully harness this data will gain a significant competitive advantage over those that continue to operate with limited visibility into their processes.

Artificial Intelligence Will Move Underground

Artificial intelligence is no longer a future concept. Around the world, mining companies are already exploring AI-driven maintenance, process optimization, and operational decision support.

As African mining operations continue investing in digital infrastructure, AI applications are expected to expand rapidly.

Future AI systems may:

- Predict equipment failures automatically
- Recommend process adjustments
- Optimize energy consumption
- Identify production bottlenecks
- Improve plant throughput
- Enhance fleet management

However, AI is only as effective as the quality of the data it receives. This is why technologies that provide reliable field-level information, such as intelligent sensors and digital communication networks, will become increasingly important.

Safer Mines Through Digital Visibility

Safety remains the highest priority across the mining industry. The ability to continuously monitor operating conditions provides an additional layer of protection for both personnel and equipment.

Early warning systems, automated alerts, and enhanced diagnostics enable operators to respond faster to abnormal conditions before they escalate into incidents.

Begun

Future mining environments are expected to leverage:

- Remote monitoring
- Wireless condition monitoring
- Automated shutdown systems
- Real-time hazard detection
- Connected safety infrastructure

Resulting in safer operations with reduced exposure to operational risks.

Skills will evolve, not disappear

One concern frequently associated with automation is workforce displacement. In reality, the African mining workforce is more likely to experience transformation than replacement.

As mines become more automated, demand will grow for:

- Data analysts
- Reliability engineers
- Automation specialists
- Digital transformation leaders
- Instrumentation technicians
- Control system engineers

The successful mine of the future will combine advanced technology with highly skilled personnel capable of interpreting and acting on the insights generated by connected systems.

Looking toward 2035

The mines that thrive over the next decade will likely be those that embrace digitalization today.

Technologies that connect sensors to higher-level systems create the foundation required for predictive maintenance, analytics, artificial intelligence, and autonomous operations.

For Africa, the future mine will be: Connected. Intelligent. Predictive. Automated.

The journey is already underway. The question is no longer whether mining automation will arrive in Africa.

The question is which mining companies will lead the transformation, and which will struggle to catch up.

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When Weighing Accuracy Becomes a Business Issue



Accurate weighing is not simply a technical requirement. In processing and manufacturing environments, it can have a direct impact on product quality, material usage, inventory control, profitability and customer confidence.

In many industrial operations, weighing is part of the process that happens quietly in the background. Raw materials are weighed. Ingredients are dosed. Products are checked. Loads are dispatched. Stock is monitored.

Because weighing is so integrated into the operation, it is easy to overlook the importance of keeping the equipment accurate and reliable. Until something goes wrong.

Small inaccuracies can become significant losses

Consider a production environment where a product is consistently being overfilled by a small amount. Individually, the difference may appear insignificant. Across hundreds or thousands of units, however, that additional material can become a measurable cost.

The same principle applies to raw materials, batching, stock control and dispatch. Inaccurate weighing can result in:

- unnecessary material usage
- inconsistent product quantities
- stock discrepancies
- production inefficiencies
- incorrect invoicing or dispatch quantities
- product quality issues
- unnecessary waste
- avoidable downtime

For businesses where weighing forms part of a critical process, accuracy should therefore be viewed as a business-control issue, not simply an equipment specification.

Calibration is only one part of the equation

Calibration is an important part of maintaining confidence in weighing results, but a reliable weighing system requires more than an occasional calibration certificate.

The condition of the equipment, the environment in which it operates, how it is used, mechanical wear, load cells, indicators, connections and other components can all influence performance.

This is why preventative maintenance matters.

A structured service programme allows potential problems to be identified before they become production problems. It also gives businesses a clearer record of the condition and performance of their weighing equipment.

The right weighing solution starts with the application

There is no single weighing solution suitable for every industrial environment.

A laboratory application has very different requirements from a heavy-duty industrial weighing application. A weighbridge has different considerations from a hopper or silo weighing system.

The application determines the appropriate equipment, capacity, accuracy, environment, installation and ongoing support requirements. This is particularly important when businesses are replacing equipment or considering a new weighing application.

The cheapest equipment is not necessarily the most cost-effective solution if it cannot deliver the required accuracy, reliability or service life.

Weighing equipment should be treated as a working asset

For many businesses, the conversation traditionally starts with*: "How much does the scale cost?"*

A better question may be: *"What does this weighing system need to achieve for our business?"* That changes the conversation.

The purchase becomes part of a broader consideration that includes equipment selection, installation, calibration, maintenance, repairs, spare parts and technical support.

For critical applications, service continuity can be just as important as the original equipment investment.

From weighing to business confidence

Accurate measurement provides information. Reliable information supports better decisions. And better decisions can improve control over production, materials, quality and costs.

This is why weighing should not be treated as an isolated piece of equipment. It is part of the process.

For businesses operating in manufacturing, processing, logistics, agriculture and other industrial environments, taking a more structured approach to weighing can help protect accuracy, reduce avoidable losses and improve operational confidence.

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VEGA HOME OF VALUES

HMI Series and Web Server Deliver for Both

In the high-stakes world of industrial automation, equipment procurement usually triggers a classic corporate tug-



Plant managers look at the bottom line, focusing on return on investment (ROI), safety compliance, and minimizing downtime.

Control engineers look under the hood, demanding processing power, seamless tag integration, and open protocol support.

Rarely does a single piece of hardware satisfy both sides of the aisle.

However, AutomationDirect has achieved exactly that with its latest C-more HMI hardware series.

By pairing blazing-fast processing speeds with a robust, highly secure built-in Web Server, the new CM5 series serves as a dual-purpose solution: it is a cost-cutting asset for management and a high-performance playground for engineering teams.

The Plant Floor Powerhouse: Heavyweight Performance Without Premium Prices

For decades, upgrading factory interface systems meant paying exorbitant, recurring costs to legacy software vendors.

The new C-more platform completely disrupts this outdated model, delivering enterprise-grade hardware alongside massive operational and financial benefits.

What the Plant Manager Wins:

· **Immediate ROI:**
AutomationDirect provides free, award-winning programming software and complimentary technical support.

By eliminating annual licensing fees and mandatory support contracts, thousands of dollars are immediately returned to your operating margin.

· **Reduced Downtime (MTTR):**
Equipped with upgraded, high-speed processors, the CM5 series eliminates frustrating screen lag and communication bottlenecks. Operators get immediate visual indicators, enabling them to react to production anomalies before they escalate into expensive line stoppages.

· **Scalable Plant Visibility:**
The introduction of **headless HMI options (like the CM5-RHMI)** allows management to mirror control screens onto large, facility-wide high-definition monitors. This keeps the entire production crew aligned on real-time KPIs and target outputs without adding costly physical panel installations.

What the Control Engineer Wins:

· **Zero Processing Lag:**
Engineers can execute complex scripting, heavy vector graphics, and high-frequency tag polling simultaneously without worrying about memory crashes or communication dropouts.

· **Universal PLC & IIoT Connectivity:**
C-more acts as a frictionless data bridge. It features native, effortless communication drivers for Allen-Bradley (EtherNet/IP, DF1), Siemens, Omron, and AutomationDirect (Productivity, Do-more) PLCs.

Furthermore, native MQTT protocol support allows engineers to publish plant data directly to cloud brokers without needing an intermediate hardware gateway.

· **Rapid Commissioning:**
The programming environment is lean and intuitive. It supports direct, seamless tag name imports from major PLC platforms, eliminating hours of manual, error-prone data entry during system commissioning.

The Embedded Web Server: The Ultimate Intersection of Efficiency and Connectivity

The true centerpiece of the modern C-more series is its native remote access and Web Server functionality.

In an era where hybrid workflows and mobile accessibility are mandatory, this integrated server offers distinct advantages that perfectly align managerial goals with engineering requirements.

The Verdict: The Unified Choice

The new AutomationDirect C-more HMI platform proves that high-end performance, robust security, and budget-friendly pricing can comfortably coexist.

It respects a plant manager's capital expenditure constraints while satisfying a control engineer's technical demands.

By unifying rapid processing, multi-protocol connectivity, and a highly versatile web server into an openly accessible software ecosystem, the C-more lineup stands out as the ultimate choice to modernize operations from both a business and technical perspective.

Managers and Engineers

-of-war.



Feature	Plant Manager's Benefit (Business/Safety)	Control Engineer's Benefit (Technical/Architecture)
No-Hardware Remote Access	**Zero Added Cost:** Operators can monitor the HMI from any PC web browser or mobile device using the free C-more Remote HMI App (I-phone and Android), avoiding third-party SCADA add-ons.	**HTML5 Scaling:** No need to write separate code or build specific mobile views; the HMI handles screen scaling across devices automatically.
Multilevel Security	**Risk Mitigation:** Administrators can configure strict user accounts to protect critical infrastructure from unauthorized remote tampering.	**Granular Controls:** Easily map out security groups, restricting remote users to **View Only** or **Screen Change Only** while keeping safety overrides local.
Network Data Retrieval	**Enclosure Safety:** Personnel can pull data without opening electrical panels, eliminating arc-flash hazards and complying with strict safety codes.	**Streamlined FTP Tools:** The HMI can automatically push or pull CSV data logs, error traps, and recipes directly to corporate servers and databases.
Instant Diagnostics	**Minimized MTTR:** Off-site technicians can instantly view the live screen via a secure connection, turning a 2:00 AM plant outage into a quick, five-minute remote fix.	**Live Tag Troubleshooting:** Engineers can log in over an encrypted network connection to diagnose active tag faults or monitor system variables in real-time.

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Continuous, Reliable Measurement of Airborne Beta Activity



Monitoring betaemitting gases in rooms, exhaust air and ventilation systems is essential for protecting people, facilities, and the environment. The Berthold BAI 9109-4 is a proven beta gas monitor designed for continuous, reliable measurement of airborne beta activity, making it a trusted solution in demanding radiation protection applications.

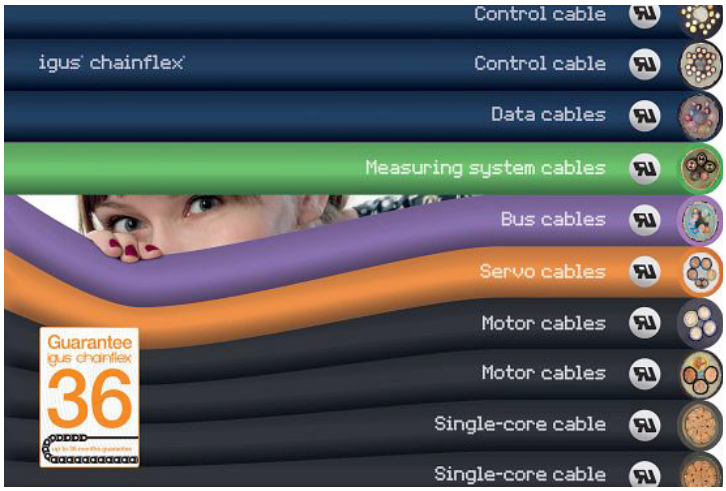
Key strengths:

· Continuous online monitoring of betaemitting gases such as Kryton-85, Argon-41, Xenon-133, Carbon-11 and Fluorine-18 in rooms, exhaust air and ventilation systems
· Measurement of beta- and beta+ (positrons) nuclides
· Up to four measuring detectors and one compensation detector, according to the required sensitivity.
· Measuring chamber with >10 L measuring volume
· NaI detector (optional) for gamma spectrometry
· Lead shielding in all sides to minimize the background as much as possible
· Large-area proportional detectors enable the greatest possible sensitivity with low sensitivity to external gamma radiation and outstanding detection limits
· Versatile connection to all Berthold data loggers for monitoring exhaust air for radioactive components
· Inline version available to be integrated into existing exhaust air system and thus enable measurements without a sampling line (bypass system)
· Proven Berthold technology, backed by decades of expertise in radiation protection

Ideal for nuclear facilities, research laboratories and industrial applications, the BAI 9109-4 supports safe operation and confident compliance when monitoring airborne beta activity.

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Fire Protection Can Also Be Achieved Without Halogens



Chainflex high-end TPE jacket compounds from igus are extremely resistant to mechanical loads as well as external influences and prevent degradation that can cause fires.

They can therefore be used in a wide range of applications: in small installation spaces of up to 4xd, on highly dynamic, short travels with accelerations of 100m/s² or on long travels in a temperature range from -35°C to +100°C.

At the same time they are extremely media resistant, even with special organic oils.

In all of these energy chain applications, the halogen-free TPE jacket compounds from igus minimize premature aging of the outer jacket by a factor of up to 10; when compared to the same materials containing flame retardants.

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More Than Just Measuring Pressure



With the series DW5x series, ipf electronic is introducing the next generation of pressure sensors that meet a wide range of very different requirements and can be used in a wide variety of applications for liquid or gaseous media, such as hydraulic and pneumatic applications.

The device series covers a wide pressure range from -1 to +600 bar. The sensors with digital full stainless steel measuring cell and integrated processor not only provide the pressure, but also, for example, a relative temperature value of the medium to be monitored if required.

The sensors are available in three different measuring cell versions: ¼" outside thread, ¼" inside thread and ½" outside thread with front-flush diaphragm.

The pressure sensors are set or parameterized via three diffuse reflection sensors integrated in the housing with plain text menu navigation on the display.

Alternatively, the sensors can be parameterized via IO-Link.

An integrated, easy-to-read TFT colour display enables intuitive operation of the sensors.

Intuitive TFT colour display:

Easy to read, with versatile display modes, e.g. plain text display, trend display and colour visualization of switching points.

Simple operation:

Three diffuse reflection sensors integrated in the housing with plain text menu navigation enable quick and intuitive parameterization.

IO-Link interface:

Alternative parameterization and diagnostics (maximum and minimum values for pressure and temperature, overpressure duration, switching cycles for output 1 as well as operating hours and device status) directly via the digital interface.

Flexible outputs:

One switching output plus a second variable output, individually configurable as switching, analog or alarm output.

Variable units:

Pressure display in bar, psi or MPa, analog output either current (0...20 mA, 4...20 mA) or voltage (0...5 V, 0...10 V).

Offline test function:

Checking all sensor functions without pressurization - ideal for start-up and maintenance.

Rotatable display and housing:

The display can be continuously rotated through 360° in 90° increments so that the display can be optimally read in any installation position.

Perfect readability:

Intuitive plain text menu navigation in the display.

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Unmatched Precision in Coal Mining



South Africa's coal mining industry is a major economic contributor. With about 35 billion tons of proven coal reserves, the country ranks eighth globally and holds roughly 3% of the world's total.

In 2023, the sector generated R654 billion, supported national GDP, and employed thousands—highlighting the need for efficient, uninterrupted operations.

In coal mining, block shoot systems control coal movement between processing stages, making accurate level measurement essential to prevent overflows, blockages, and equipment failures.

Conventional capacitive probes and microwave sensors often struggle with dust, magnetic interference, and falling rocks, causing inaccuracies, downtime, higher maintenance costs, and safety risks. More durable measurement solutions are therefore essential.

Reliable Performance

The VEGAPULS 6X operates on radar technology, transmitting radio waves and measuring the reflected signals to determine the distance to the material surface.

Unlike capacitive probes, which are susceptible to damage from rocks or microwave sensors affected by magnetic fields, this non-contact radar sensor remains unaffected by physical impacts and electromagnetic interference.

Its design ensures uninterrupted operation even in the dusty, magnet-laden environment of coal mines.

By providing continuous, real-time data on coal levels, the VEGAPULS 6X enables efficient monitoring and control of the block shoot system. This real-time insight helps prevent blockages and overflows, ensuring smooth operations.

The sensor's non-contact measurement approach is particularly advantageous in dusty environments, as it eliminates direct contact with coal, reducing wear and tear and enhancing long-term reliability.

When integrated with the 841 controllers, the VEGAPULS 6X functions as an automated switch, activating or deactivating based on preset material levels.

This automation streamlines operations, reduces the need for manual intervention, and enhances overall efficiency.

Case Study: Enhancing Efficiency in a South African Coal Mine

A South African coal mine faced frequent operational interruptions due to unreliable level measurements in its block shoot system.

The existing capacitive probes and microwave sensors were prone to failures caused by dust accumulation and magnetic interference, leading to blockages and overflows. These issues resulted in costly downtime and increased maintenance efforts.

Upon implementing the VEGAPULS 6X radar sensor paired with 841 controllers, the mine experienced a significant improvement in operational efficiency.

The robust performance of the radar sensor ensured accurate and reliable level measurements unaffected by the harsh environmental conditions.

The real-time data provided by the sensor allowed for proactive management of coal levels, preventing blockages and overflows.

The automation facilitated by the 841 controllers reduced the need for manual monitoring and intervention, leading to smoother operations and reduced labour costs.

In the environment of coal mining, the reliability and accuracy of measurement instruments are essential for maintaining efficient and safe operations.

VEGA's VEGAPULS 6X radar sensor, when combined with the 841 controllers, provides a solution to the challenges encountered in block shoot systems.

This technology delivers precise, real-time level measurements and facilitates integration into automated systems, which can enhance productivity, reduce operational interruptions, and potentially increase the profitability of coal mining operations.

As South Africa continues to utilise its considerable coal reserves, the incorporation of advanced technologies such as the VEGAPULS 6X can play a role in optimising mining processes and supporting the industry's significance in the economy.

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Particularly Simple, Robust and Highly Versatile Angular Measurement



The absolute angle sensors of the MD42002x series from IPF are particularly cost-effective, extremely compact, and cover the entire 360° angular range. Notable features include simple, flexible mounting, a high degree of protection, and a wide operating temperature range.

As a result, these magnetic angle sensors operate with absolute reliability even under the most adverse environmental conditions.

The MD42002x consist of only two main components: a moving transducer (magnet) and a stationary sensor.

The separate installation of the transducer and sensor opens up many flexible mounting options for users, allowing the devices to be easily integrated into existing machine assemblies for a wide range of industrial control and regulation tasks, among other applications.

As absolute encoders, the angle sensors do not need to be calibrated or referenced before start-up.

The operating principle of the MD42002x is impressively simple: Relative to the sensor, the direction of the magnetic field lines in space changes depending on the rotational movement of the transducer.

The fixed sensor detects the changes in the direction of the magnetic field lines, which allows the exact position of the transducer relative to the sensor to be determined.

The corresponding angular position, derived via the entire range from 0° to 360°, is output by the MD420020 and in the MD420021 into an analog current signal (4…20 mA).

Both angle sensors are designed with a degree of protection IP67 for harsh industrial environments (resistant, e.g. to dirt, dust, moisture, or oils) and can be used at ambient temperatures ranging from -40 °C to +85 °C.

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Exhaustive Laboratory Tests Put POM Material

Newer 3D tribological materials are able to meet moulded and machined POM performance



Exhaustive tests have been conducted by technical staff at the world's leading manufacturer of polymer materials for moving applications, igus, to compare traditional Polyoxymethylene (POM) performance to its latest 3D printed materials.

POM has been a standard engineering plastic for wear-resistant and mechanically loaded components for decades. Its strength has become the standard for components like gears, bearings and bushes, as well as other moving components.

With new tribological 3D-printing materials from igus engineers wanted to evaluate the new materials that can give them new options particularly for customised or low-volume parts as well as replacement components when required.

The new white paper from igus compared its iglidur 3D-printing materials directly with POM to examine friction, wear and service life in different applications.

The results indicate that appropriately selected igus 3D-printed materials can provide a practical alternative to conventionally machined POM in a number of applications.

The comparisons were based on grease-free testing which is relevant for applications where additional lubrication was undesirable or impractical.

igus develops its iglidur 3D-printing materials specifically for applications involving friction and wear.

The materials incorporate solid lubricants into the polymer allowing components to operate without external lubrication. They are available for several additive manufacturing processes including FDM filament, SLS powder and DLP resin.

The testing considered the properties of the material and its behaviour as a finished component. This is important for tribological applications because friction and wear are influenced by the load, speed, mating surface, component geometry and operating conditions.

According to igus, its 3D-printing materials produced lower wear and more stable friction than POM in the tests conducted.

Gear testing produced particularly significant differences with the company reporting more than eight times the service life in VDI 2736 testing and ten times longer service life in Framo Morat gear testing. Pivot testing recorded up to five times less wear than POM.

These results apply to the specific materials, components and test conditions used and should not be interpreted as a universal replacement factor for every POM application. They nevertheless demonstrate the potential of tribological additive manufacturing for functional components.

Gears are particularly demanding components because their teeth experience a combination of rolling and sliding contact under repeated loading.

Progressive wear can alter tooth geometry, increase backlash and eventually result in tooth failure.

In one igus test, a gear manufactured from iglide i3 by laser sintering was compared with a machined POM gear in a rack-and-pinion arrangement. The 3D-printed iglide gear lasted five times as many cycles before failure as the POM gear.

Another test involving iglide i6 worm gears recorded more than one million cycles while remaining functional. The comparable milled POM gears showed significant wear after 321,000 cycles, with teeth eventually breaking at 621,000 cycles.

The choice of printing material can also be matched to the gear application. iglide i3 is suited to applications requiring higher strength including spur and helical-bevel gears.

iglide i6 has optimised sliding properties and is suitable for worm gears while iglide i8-ESD is intended for applications requiring electrostatic dissipation.

Plain bearings provide another area where 3D printing can offer practical advantages. A conventional POM bearing is straightforward to produce in volume but customised dimensions or small quantities can make conventional manufacturing less attractive.

A 3D-printed component can be produced directly from a CAD model without dedicated tooling.

This is particularly relevant where machinery requires an unusual bearing geometry or where a replacement part is no longer readily available or only a small number of components are required.

The same principle applies to lead screw nuts and other sliding components. Instead of using additive manufacturing simply to produce a prototype engineers can use a wear-optimised material for the functional component itself.

igus testing also indicates that its 3D-printing materials can perform in specialised environments as tests of SLS-printed iglide i8-ESD plain bearings under water showed.

It has service life that was comparable with injection-moulded iglidur materials developed specifically for underwater applications.

igus South Africa managing director, Ian Hewat, says material performance is only part of the argument for additive

to the Test

manufacturing while the other advantage is the manufacturing process itself where 3D printing eliminates the need for conventional tooling and allows components to be produced directly from digital designs.

A manufacturer can produce a single component or a small batch from a CAD model and produce another version without creating new tooling.

"It can also reduce material consumption compared with machining a component from a larger block of material. igus reports potential production-cost reductions of up to 40% and material-waste reductions of up to 90% in the applications it has evaluated.

"For maintenance departments the ability to manufacture a replacement component from a digital file can also reduce dependence on discontinued or difficult-to-source parts.

"The comparison does not mean that POM has become redundant. The material remains a well-established engineering material with predictable characteristics and established conventional manufacturing methods.

"For high-volume production of identical components, machining, injection moulding or other established processes can remain economically attractive.

"We think the case for 3D printing is strongest where production quantities are relatively small, where geometries are complex or a replacement part is needed quickly and the choice depends on the application rather than simply the material," says Hewat.

He comments that the paper found the materials highly suited to applications such as gears, plain bearings, lead screw nuts and other wear components and these should be considered for additive manufacture.

As a result the company also offers an online 3D-printing service that allows customers to upload a CAD file and have individual components or series manufactured using its own wear-resistant materials. The service can also be used to estimate component service life.

"In South Africa we think the main significance of the POM comparison is that it shows engineers that they have another manufacturing option.

"For customised, low-volume and replacement components the combination of wear performance and on-demand production can make 3D printing a practical alternative to conventionally manufactured POM and we want to help them to find workable solutions based on the requirements of the component and its production volume rather than treating 3D printing as a technology reserved for prototypes," Ian concludes.

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Process Headaches? Let Smart Sensors Do the Thinking

A petroleum wholesaler based in south-central Michigan has been steadily expanding its operations for over 80 years. Now in its fourth generation, the company provides heating solutions, fuels, commercial oils, and industrial lubricants to clients in Michigan, Indiana, and Ohio.

Ensuring accurate management of product distribution across multiple locations is crucial. Transport trucks regularly refill and distribute items from 18 bulk storage tanks located at three facilities, while suppliers replenish these tanks to maintain smooth operations.

Safety is the top priority when dealing with petroleum products. Spills are costly due to lost product and EPA cleanup requirements. To ensure safety, the company installed high-level limit switches on bulk storage tanks.



A failure in the point-level switch resulted in a significant disruption, leading to both the loss of a substantial quantity of product and the need for extensive cleanup efforts.

This malfunction not only impacted the operational efficiency but also created a challenging situation that demanded immediate attention to restore normalcy.

Instead of "just replacing" it, the company decided to enhance its system with continuous level measurement, visual feedback, audible alarms and remote monitoring integration.

Partnering with VEGA for a Complete Solution

The petroleum wholesaler researched to find a comprehensive solution and came across VEGA. A local representative promptly visited, listened to their requirements, and provided an on-site demonstration of a potential solution.

Following additional discussions and further research, the wholesaler opted for non-contact 80 GHz radar combined with an inventory management and alarm system. Specifically, they purchased 18 VEGAPULS C 21 radar sensors and three VCCS13e central visualisation cabinets – one for each of their locations.

The VEGAPULS C21 offers a non-contact, maintenance-free measurement, eliminating the need to clean the sensor.

The C21 radar level sensor utilises 80 GHz technology for precise and dependable measurements, while the 80 GHz frequency allows for a more focused beam angle, ultimately resulting in a stronger signal return, even with fluids that have poor reflective qualities.

The VCCS13e serves various functions in inventory management applications, including the ability to power up to 30 connected devices. Its large touchscreen displays local visualisations of level measurements for up to 10 vessels simultaneously.

Furthermore, the VCCS13e employs an external alarm light and horn to alert users to up to four different alarm points per sensor.

Improved Safety and a Smarter System

VEGA assisted in commissioning the radars and an inventory management and alarm system at each of their three sites. With the new, more reliable measurement system implemented, the company has enhanced safety and efficiency in their operations.

The company has not only invested in advanced technology but has also formed a strategic partnership with VEGA. This collaboration is essential, as VEGA has a deep understanding of the company's specific needs and provides continuous support for all aspects of level measurement and inventory management.

When it comes to process control, simplicity and precision go hand in hand. VEGA's smart sensors are designed to simplify measurement, providing clear and reliable data where and when it matters. Process headaches? Let VEGA's smart sensors do the thinking so you can focus on performance, not problems.

Maximum control. Minimal hassle.

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Selecting Digital Pressure Gauges


MPG100


MPG200


MPG300


MPG400


MPG500


MHH100-01

Bass Instruments, represented locally by Instek Control (Pty) Ltd, manufactures a wide range of digital pressure gauges to suit a variety of industries and applications.

MPG100

The Mesens MPG100 series Digital Pressure Gauge is a high-precision smart digital pressure indicator. It can be used for measurements of gases, liquids, oils, and other non-corrosive fluids. The gauge features an automatic shut-off function to extend battery life and provides easy reading in dark environments with its backlight.

MPG200

The Mesens MPG200 series Digital Pressure Gauges are designed for easy reading of various liquid or gas flows. With the peak value feature, you can monitor the maximum pressure recorded by the digital gauge.

MPG300

The MPG300 is a high-precision intelligent digital pressure gauge. It has a high-precision sensor and displays pressure accurately in real-time. It offers advantages such as high accuracy and excellent long-term stability.

The MPG300 is equipped with a large-size LCD, featuring functions such as zero clearing, backlight, on/off button, units switching, and low-pressure alarm. It is convenient to install and easy to operate.

MPG400

This high-precision digital pressure gauge adopts a 55x55 mm large-size LCD screen. It uses a crossover display of the main screen and the sub-screen. It can display the real-time pressure and simultaneously display the reference data such as the on-site temperature and pressure maximum/minimum.

MPG500

This gauge is a high-precision and intelligent digital pressure gauge. It has a high-precision sensor and displays the pressure accurately in real time, equipped with a large-size LCD.

It has various features, such as zero clearing, backlight, on/off button, units, low voltage alarm and is convenient to install and easy to operate.

The surface and connector of the product is 304SS. It can be used to measure gas, liquid, oil, and other non-corrosive mediums of stainless steel. Applicable to: portable pressure measurement, equipment supporting, equipment calibrations.

Differential Pressure Gauge - MHH100-01

This instrument is designed to measure differential, positive, and negative pressure with high accuracy. It supports multiple units including KPa, mmHg, inHg, psi, mbar, bar, oz/in², kg/cm², inHO, ftHO, and cmHO.

Equipped with a convenient hose connection device, it allows for quick setup and reliable operation. It is particularly well-suited for the measurement and on-site calibration of ventilation and air conditioning systems, clean room pressure monitoring, and troubleshooting of gas pressure systems.

With its simple operation and clear display, readings can be obtained quickly and effortlessly.

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Pretty Close to Hell: Material Testing Under

PC-based control in test bench automation



Using four MTC test benches developed by IABG, the German Aerospace Center (DLR) in Augsburg undertakes important basic research for future generations of engines.

It tests a wide variety of materials under precisely reproducible mechanical, thermal, and chemical conditions – at temperatures of up to 1,400°C, pressures of 20 bar, and with synthetically mixed exhaust gases.

PC-based control, EtherCAT, and precision measurement technology from Beckhoff are responsible for generating these extreme test conditions, monitoring the test sequences, and recording all measurement results.

As part of the innovation partnership with IABG in Ottobrunn, which has been in place since 2020, four different MTC test benches (a planar biaxial hydraulic test bench, a uniaxial hydraulic test bench, creep test bench, and a 1,000 Hz very-high-cycle fatigue test bench) have been developed together with the German Aerospace Center (DLR, Deutsches Zentrum für Luft- und Raumfahrt) for testing materials under simultaneously acting mechanical, thermal, and chemical loads (MTC).

"By using these test benches, we can test material samples under engine-like conditions to assess their long-term performance," explains Dr. Matthias Wimmer, Project Manager at IABG.

As a result, the test benches help to achieve more reliable and precise predictions of the service life of engine components subjected to multiphysical loads.

Engine-like conditions

On all four test benches, the material samples can be exposed to a mixture of various clean gases (N_2, O_2, CO_2, NO, CO, SO_2) and water vapor inside a pressure chamber during testing.

"This allows DLR researchers to realistically simulate an engine's exhaust gases as well as the incoming air and to observe the effects on the material," says Andreas Keil, Project and Product Manager at IABG.

In addition, each test bench is equipped with a laser-based heating system that can precisely heat the samples to temperatures of up to 1,400°C.

"Such a combination of mechanical, thermal, and chemical exposure to exhaust gases and moist air has not been seen before," says Dr. Laura Cordes, Head of Department at the DLR Institute of Test and Simulation for Gas Turbines (SG).

The respective material tests are conducted under defined environmental conditions. These tests typically include cyclic sinusoidal loading and testing sequences, standard Wöhler tests, or crack propagation studies.

"The results will be incorporated into the development of the next generations of gas turbines and engines," emphasizes Dr. Wolfgang Müller, Head of the Mechanical-Thermal-Chemical Testing Group.

In addition, the measurements help to validate existing numerical simulation models for materials and alloys that are being developed as part of the virtual engine project at the DLR Institute.

Measurement technology, safety, and automation in one system

For automation, test room monitoring, and measurement technology, IABG relies on the Beckhoff portfolio and EtherCAT. "PC-based control is the ideal platform for us to implement such complex systems," says Andreas Keil, "while remaining high-performing, open, and flexible."

Thomas Gabler, who is responsible for automation, controller, and software development at IABG, adds: "The ability to easily exchange safety and non-safety data in particular made implementation much easier for us – especially with measurement technology as an integral part of the system."

For Andreas Keil, openness is essential when dealing with such heterogeneous test benches that involve many different equipment suppliers.

"With PC-based control, we know from our experience in many projects that the integration of a wide variety of protocols and interfaces actually works. This includes the integration of components via PROFINET RT and TCP protocols."

EtherCAT is used for communication with the laser controller, whereas the safety components are wired in the traditional manner. The position of the laser heads is monitored by safety switches.

Extreme Conditions

The temperature of the laser traps can be measured using thermocouples, TwinSAFE SC, and EL3314-0090 EtherCAT Terminals.

According to Raphik Shahmirian from Sales at Beckhoff Munich: "The positive experience with PC-based control also prompted the laser supplier to use the C60xx ultra-compact Industrial PCs and TwinCAT as the general control platform for their own devices going forward."

The door interlocks for the individual test rooms are, in turn, integrated via EtherCAT P and FSoE. "This option saved us a lot of wiring effort and made it easier to integrate the system into the safety circuits," emphasizes Stefan Glauer, Technical Manager for Test Bench Automation at IABG.

Since test benches are constantly being expanded with additional equipment to meet new requirements, a communication system like EtherCAT – which can be adapted flexibly to these requirements in terms of performance and topology – is virtually ideal.

In addition to several EtherCAT segments and EtherCAT P technology, IABG uses EtherCAT Couplers for other fieldbuses.

"The extensive modular system of EtherCAT Terminals and other components is one of Beckhoff's strengths and is very valuable to us," emphasizes Andreas Keil.

Standard sensors used for safety

One example of this diversity is EtherCAT Terminals with TwinSAFE SC (Single Channel), which are used to monitor the safety-critical temperatures of the laser traps and laser beam containment tubes.

These are measured using standard thermocouples and PT100 resistors and digitized via the corresponding EtherCAT Terminals (EL3314-0090 and EL3214-0090).

"TwinSAFE SC enabled us to safeguard the performance level determined by prior risk assessment," says Andreas Keil. This is because some of the experiments run for several weeks and must operate reliably even when unsupervised.

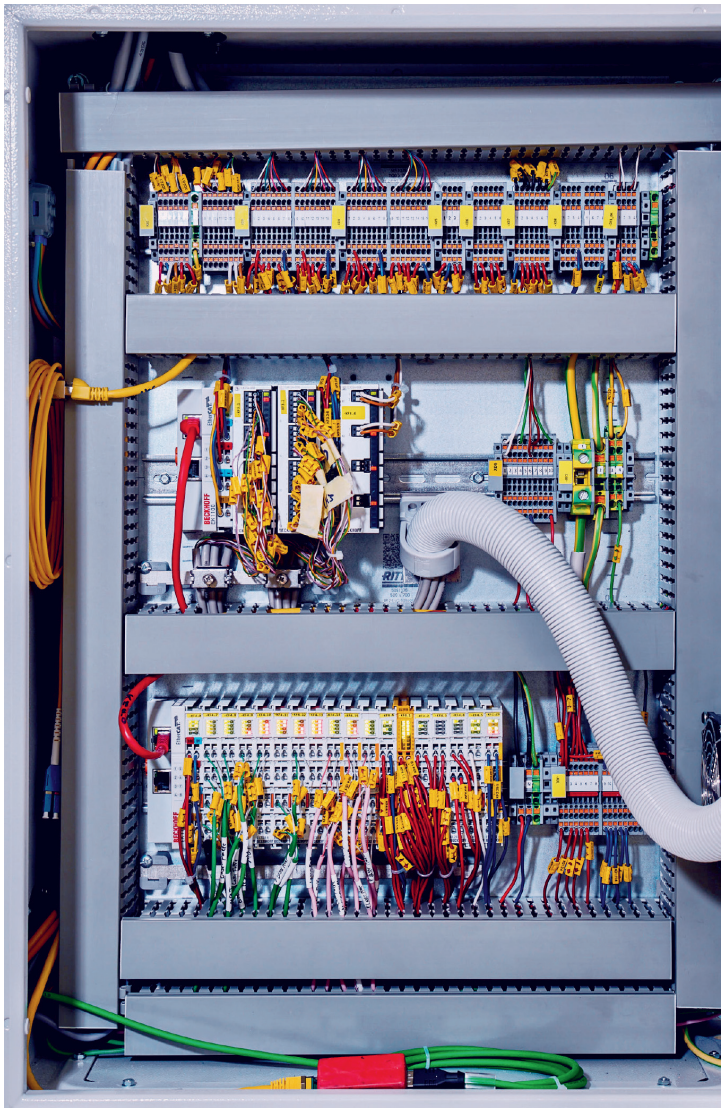
Raphik Shahmirian adds: "TwinSAFE SC is a very elegant solution for safely evaluating temperature inputs."

In analog measurement technology, EtherCAT demonstrates another of its strengths as a fast, synchronized measurement technology bus: The signals from the thermocouples and all other sensors are digitized with high precision near the test chamber and transmitted to the controller.

"This decentralized I/O approach enables short, cost-effective sensor cabling to be used while ensuring extremely precise synchronization in the sub-µs range throughout the entire system," adds Christian Lindemann, I/O Product Manager at Beckhoff.

The ELM3704 multi-functional terminal is used on the test benches as a universal measuring device in the decentralized control cabinets.

On the MTC test benches, the forces, positions and displacements, and, in some cases, torques are read from the controllers of the load frames via their analog outputs.



"We had no choice, because there was no possible synchronized digital interface between the controller of the load frames and the Beckhoff controller that would have met the requirements of the DLR," says Christian Lindemann, explaining the reasoning behind this solution.

For this reason, the standardized signals (±10 V) from the load frames are acquired with high precision at a sample rate of 10 ksamples/s via 4-channel ELM3004 Terminals for voltage measurement.

"At a PLC cycle of 1 ms, a tenfold oversampling rate is perfectly sufficient," explains Stefan Glauer. Oversampling with EtherCAT enables highly dynamic data acquisition at moderate cycle times, thereby reducing the performance requirements for the IPC.

continues overleaf ...

... continues from previous page

The test benches are controlled, monitored, and configured from a central control room using a LabVIEW™ user interface, which also allows the EtherCAT Terminals to be configured via TwinCAT ADS (Automation Device Specification) and CoE (CAN over Ethernet).

To this end, the Interface for LabVIEW™ (TF3710) was further developed in accordance with the requirements to enable flexible configuration of the EtherCAT Terminals from the control room and to coordinate the measurements.

CX2043 and CX5140 Embedded PCs are used as controllers for the test benches; they are connected via an EL6692 EtherCAT Bridge and collect all process values – such as temperatures, pressure readings, and gas composition, as well as load conditions and device status information – in sync with all measurement channels.

"Despite different sample rates, TwinCAT consolidates all measured values based on the precise timestamps of the EtherCAT telegrams," says Christian Lindemann.

The complete process image is then available for analyzing the test series.

"We prefer a traditional architecture for the test benches and keep the system controller separate from the measurement technology," adds Andreas Keil.

In the future, MATLAB® and Simulink® models developed by DLR scientists are also expected to run in parallel on the measurement technology IPC.

Thanks to this clear separation, any modifications to the measurement technology will be without impact on the control technology.

Looking ahead, the DLR and IABG still have many ideas: They are considering using OPC UA not only to transmit information from the test benches to the DLR, but also to use this interface to take control actions.

"In principle, it would be possible to adjust the load cycles during operation and, for example, to replicate the conditions inside a turbine during flight in real time on the test bench," says Dr. Wolfgang Müller.

Similarly, the researchers could run a simulation model against the test bench and use the data to compare it with real-world physics.

Based on the open approach and flexibility of PC-based control, developers and researchers can also implement these next stages of development.

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Clamp-On Ultrasonic Sensor Detects Wall Thickness

The SUC-type clamp-on flow meter enables the quick and uncomplicated measurement of medium flow in rigid pipes made of steel, stainless steel or plastics such as PVC.

Since the installation of this ultrasonic sensor does not require any modification or cutting of the pipe itself, it can be mounted without interrupting the process.

The SUC automatically detects the pipe wall thickness, eliminating the need for time-consuming manual input and reducing potential sources of error.

This ensures reliable and reproducible measurement results right from the start.

Fast and easy installation

Installation could not be easier, with the process just involving positioning the sensor, snapping the counterpart into place and tightening the screws.



Thanks to the standardised M12 connector, integration into the data network is quick and error-free.

The SUC also supports users during commissioning: an intelligent setup wizard guides them step by step through the few settings required, getting the sensor up and running in no time.

Ideal for retrofits and service calls

Offering high flexibility and fast, straightforward installation, the SUC is the ideal choice for retrofit applications.

Even temporary applications, such as service calls or one-off measurements, can be realised quickly and easily.

The same applies to applications requiring the highest standards of media purity and hygiene.

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Freely Configurable Stackable Light Tower



The individually configurable stackable light towers allow the user to customise the status display of industrial machines and systems precisely to their requirements. Five differently coloured LED segments are available for this purpose, of which up to five can be placed on top of each other on a base module.

The high visibility of the LED segments simplifies visual status transmission even over long distances.

Simple installation and acoustic signalling

The LED segments are mounted simply and securely using a twist lock. The segments are controlled individually via digital 24V DC inputs.

A buzzer can be added to the stackable light tower as an option, for example to attract greater attention in critical situations.

Thanks to its IP65 protection rating, the stackable light tower is also the ideal choice for challenging working environments. The universal mounting base which can be angled allows the upright mounting of the stackable light tower on both horizontal and vertical surfaces.

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One connector module instead of many individual connectors. Safe and efficient.

The fast interface

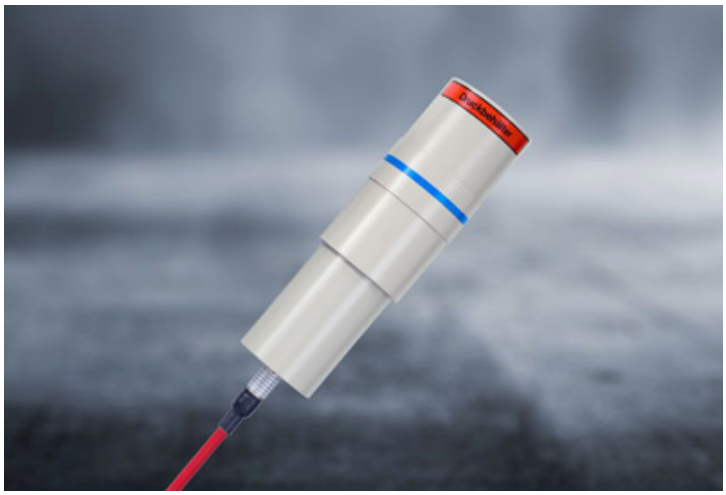
The Module Connect is a new type of connector for connecting electrical cables, fibre-optic cables and pneumatic hoses. Due to its space-saving, flat housing, it is used wherever a large number of cables are to be plugged into the smallest possible space.



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Precise Photon Radiation Monitoring



Do you need to monitor high or photon radiation dose rates? The Berthold LB 6701 ionisation chamber is a stationary robust and highly stable dose rate probe designed for precise photon radiation monitoring across a wide range of radiation protection applications.

With exceptional radiation hardness and reliable long term performance, it's a trusted choice for health physics teams working in nuclear medicine, industry, research, and civil defence.

Key Strengths:

- Wide dose rate coverage, with versions for low and high dose ranges—from 1 µSv/h up to 100 Sv/h, depending on the model.
- High durability: aluminium chamber filled with 10 bar nitrogen, offering radiation resistance up to 10v Gy.
- Accurate H*(10) measurements for ambient dose and dose rate equivalents in photon fields.
- Built-in Sr-90 check source to continuously monitor the proper functioning of the system.
- Stable pulse output via I-F-Converter, ensuring precise electronic signal processing.
- IP65 protection, robust build, and broad operating temperature tolerance for demanding environments.

For high reliability photon dose rate monitoring, the LB 6701 delivers the precision and robustness that radiation protection professionals depend on.

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Why Do Level Sensors Drift?



Level measurement can look straightforward. Until the environment starts working against the sensor.

- Condensation
- Humidity
- Temperature changes
- Moisture ingress
- Dust and buildup

Traditional vented sensors use an open atmospheric reference. That creates a pathway for environmental conditions to affect the measurement, and over time, this can contribute to measurement drift.

The question is: What if the sensor could eliminate that pathway?

That is one of the engineering principles behind the new Anderson-Negele SL EVO.

Its dual-diaphragm design uses a sealed reference diaphragm instead of a traditional atmospheric vent, helping protect the measurement from the conditions that can cause drift.

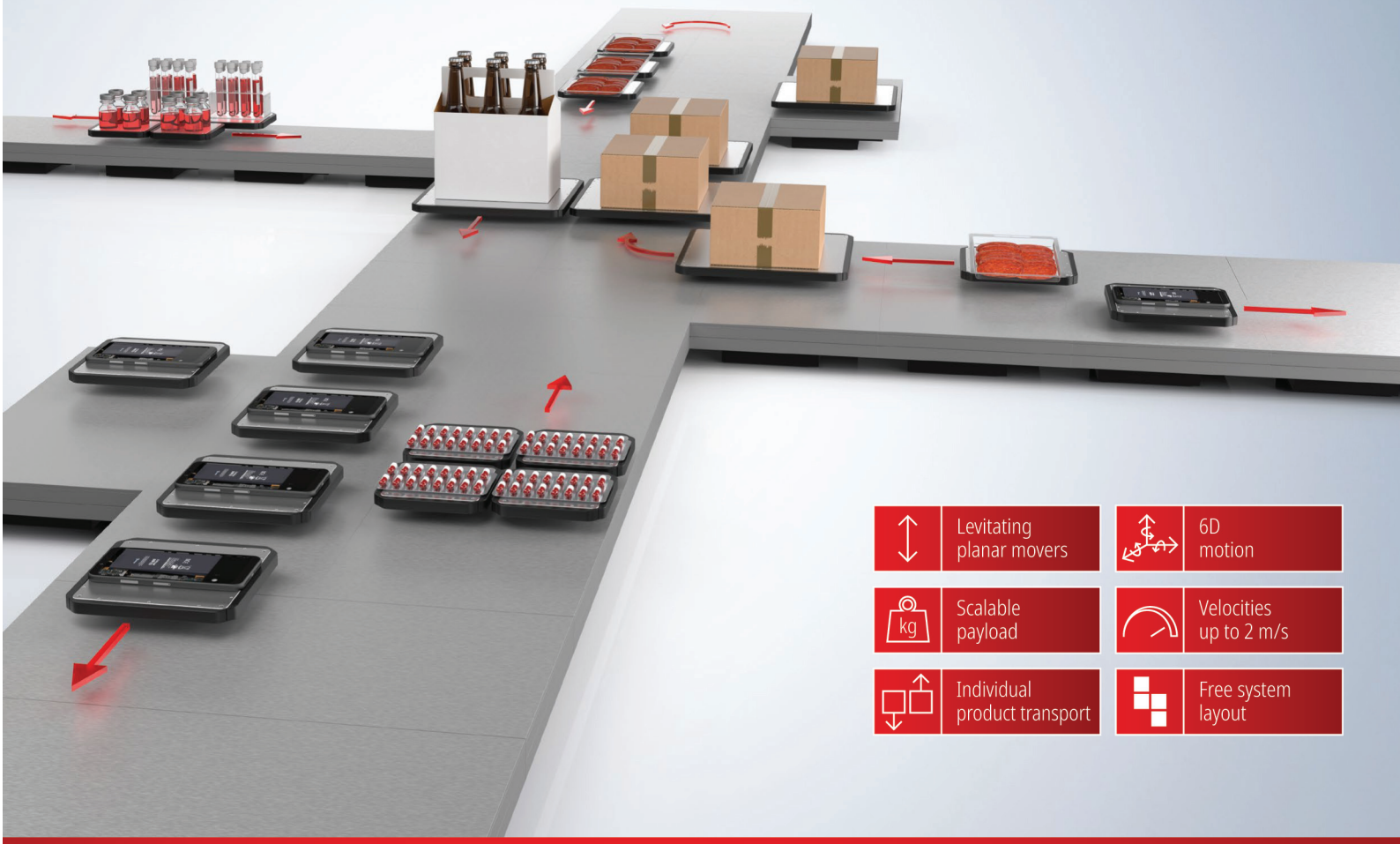
This is particularly relevant in demanding hygienic applications, including tanks exposed to significant temperature fluctuations.

Good measurement starts with good sensor design.

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New Automation Technology **BECKHOFF**

Here's Why You Should Be Using Pyrometers



Accurate infrared temperature monitoring improves product quality and increases productivity. Infrared (IR) thermometers are non-contact temperature measuring devices that detect infrared radiation from the surface of all objects and calculate it to relevant temperature readings.

Temperature plays an important role as an indicator of the condition of a product or piece of machinery, both in manufacturing and in quality control.

Downtimes are decreased since the manufacturing processes can proceed without interruption and under optimal conditions.

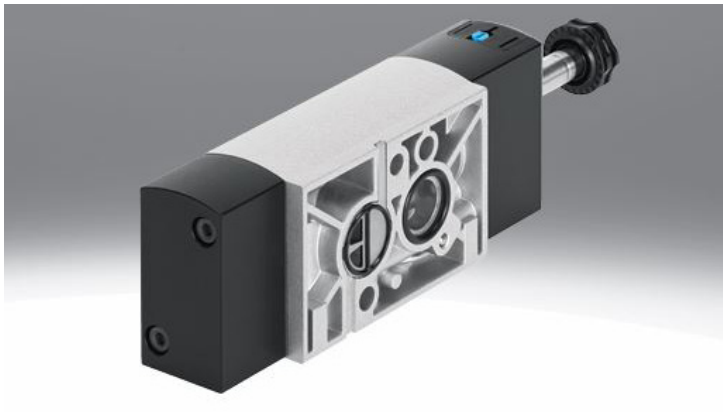
Benefits of Noncontact IR Temperature Measurement:

· It is fast (in the millisecond range) – saving time and allowing for more measurements and data accumulation.
· It facilitates measurement of moving targets i.e. conveyor processes.
· Measurements can be taken of hazardous or physically inaccessible objects i.e. high-voltage parts or large measurement distances.
· Measurements of high temperatures (above 1300°C) present no problems. Contact thermometers often cannot be used in such conditions.
· There is no interference as no energy is lost from the target.
· Noncontact temperature measurement is wearfree – there is no risk of contamination and no mechanical effect on the surface of the object.

Infrared technology has been utilized successfully in industry for decades, but new developments have reduced costs, increased reliability, and resulted in smaller, noncontact infrared measurement devices.

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Solenoid Valves Designed for Process Automation



VSNC valves are pilot valves for single- and double-acting quarter-turn and linear actuators with a connection pattern in accordance with VDI/VDE 3845, such as DAPS, DFPB, and DLP.

With the appropriate accessories, such as a connection kit, they can also be mounted on actuators without a NAMUR interface, such as diaphragm actuators.

They are designed for the requirements of process automation. A mechanical spring (single solenoid valves) ensures safe switching to the initial position in the event of a power failure. Working ports 2, 4 on valves VSNC-F...-P2 are designed according to VDI/VDE 3845 NAMUR.

Innovative:

• Conversion from a 3/2-way to a 5/2-way valve simply by turning the seal
• Enables single- or double-acting actuators to be controlled with one valve
• The valve can be ordered either with non-detenting/detenting or non-detenting manual override or without manual override. It is converted using a special cap. The part number is therefore identical. It can be converted at any time

Flexible:

• Cost-optimised variant with plastic cover and brass armature as well as IP65 coils
• Application-optimised variant with aluminium cover, stainless steel armature for IP65 and Ex coils as well as protective cap for the armature
• One armature system for all Ex solenoid systems
• Pilot air for VSNC-F ... -P2 CNOMO connection to ISO 15218
• For Zone 1 and Zone 2 to IEC Ex with type of ignition protection
• Ex-ia • Ex-mb • Ex-nA • AEx-m
• For Class I Div I to NEC 505

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New Power Supply with Built-In Diagnostics for Machine-Mounted Power Circuits



The S8NR IP67-rated power supply series from Omron is designed to be mounted directly on machinery, outside the control panel.

It spans 90 W to 600 W (24 V DC), and the 360 W and 600 W models pack up to six individually protected outputs into a single unit. This reduces the number of separate parts an engineer needs to select and wire.

Alongside the S8NR, Omron has also introduced the IP67-rated S8R-BB DC Blocking Box, which lets control circuits be wired outside the panel too. The key benefit for users is visibility and speed once the unit is installed.

A digital display on the 360 W and 600 W models shows live voltage, current and fault status for every channel, so a circuit can be checked without a multimeter, and each output has its own LED, green in normal operation and red if it trips, for fast fault-finding.

A built-in maintenance-forecast function tracks the condition of the unit's internal capacitors and reports, in years and as a percentage, when it will need replacing, so maintenance can be planned ahead of a failure.

IO-Link communication makes all of this readable and configurable remotely.

Installation is also faster. Every connector uses Omron's Smartclick quick-connect system, cutting the time to make a single connection to around four seconds, against roughly twelve seconds for a comparable screw-type fitting.

A keyhole mounting bracket lets one person hang and align the unit alone, and DIN-rail mounting is supported as an alternative to screw fixing.

Trip currents can be set in 0.1 A steps and start-up sequencing delayed in 0.1-second steps per output, so thinner cable can be used and inrush current no longer trips the supply when several loads switch on together.

The DC Blocking Box extends the same approach to control circuits, connecting with the same Smartclick system as the S8NR so that power and safety wiring can both be completed at the machine.

Omron's own analysis of a representative circuit found that using the S8NR-S and S8R-BB together can cut the number of components an engineer needs to select from ten to two.

Taking power supplies off the panel and onto the machine solves a real space and heat problem, but it has often meant losing sight of what's happening on each circuit.

The S8NR is designed to keep that visibility wherever the unit is mounted, so engineers don't have to trade one problem for the other.

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Adroit 11 is the Next Step in Open Automation

The upcoming release from Adroit Technologies combines a modern user experience with greater performance, scalability, cybersecurity and engineering flexibility.



Industrial automation platforms need to do more than keep pace with technology. They need to provide the reliability that operations depend on while giving engineers and operators the tools to respond to increasingly complex requirements.

That balance is at the heart of Adroit 11, the next generation of open automation SCADA platform from Adroit Technologies.

"Adroit 11 represents an important step forward for the Adroit software suite. We have taken the proven foundation that our customers know and trust and evolved it to meet the requirements of modern industrial automation, from performance and scalability to cybersecurity, engineering productivity and the way users interact with the system," comments Co-CEO Frits Kok.

Soon to be released, the new version brings together a broad range of enhancements, from a completely refreshed user experience and native 64-bit architecture to stronger cybersecurity, biometric authentication, health monitoring, AI assistance and native Python scripting.

Rather than representing a single headline change, Adroit 11 is the result of a three-year comprehensive evolution of the platform.

More than a new look

One of the most visible changes is the refreshed user experience. Adroit 11 introduces a modern, unified interface designed around contemporary design principles, including Microsoft's Fluent Design approach and dashboard-driven applications.

The result is improved visual clarity, intuitive navigation and greater consistency across Designer, Operator and the Asset Library. Configurable themes, refined layouts and improved readability are intended to make the platform equally effective across traditional workstations and high-resolution displays.

Importantly, the redesign is more than cosmetic. It establishes a scalable design framework that provides a foundation for future innovation while making everyday engineering and operational tasks more efficient.

Native 64-bit architecture

Underneath the refreshed interface is an important architectural change. Adroit SCADA is moving to a native 64-bit architecture with Adroit 11.

This enables the platform to make better use of modern operating systems and hardware, supporting larger datasets, more extensive tag databases, historical data and more complex applications.

Expanded memory capacity and improved resource utilisation provide greater scalability while maintaining application responsiveness. For existing users, the transition is intended to be evolutionary rather than disruptive.

The proven Adroit SCADA foundation, established engineering practices and operational reliability remain, while the

underlying architecture provides greater capacity for today's requirements and future growth.

Security designed into the platform

Cybersecurity is another major component of Adroit 11. The new release provides a modern cybersecurity foundation built around Zero-Trust principles, with secure identity management, encrypted communications and centralised access control.

Support for Active Directory, LDAP and Microsoft Entra ID strengthens enterprise identity and role management, while secure web-based remote access provides an additional layer of protection for connected industrial environments.

Adroit 11 also supports TLS 1.3 and is designed to help organisations prepare for evolving regulatory requirements, including the European Cyber Resilience Act (CRA) and NIS2.

This reflects the changing requirements of industrial automation, where cybersecurity increasingly needs to be considered alongside performance, reliability and operational continuity.

An ecosystem for faster engineering

Adroit 11 also brings several capabilities together to simplify the engineering experience. The new Application Launcher provides a centralised starting point for accessing the Adroit applications, engineering tools, utilities, services and system management functions.

A major change is the move to a cloud-based Asset Library. This being an eco-system of static graphics, navigation templates, objects and wizards.

The Asset Library gives engineers access to reusable, production-ready Smart UI assets that can be searched, previewed and deployed directly into projects.

The new Objects Toolbox takes this a step further by allowing users to select the parts of the library they need and to download the Assets into their Object Repository and then use them directly into the Smart UI Designer.

Allowing users to find and drag-and-drop graphics and wizards without switching between tools. Users can search but equipment type, industry and other context making it very easy to use.

Underlying this is the Adroit Object Model, which enables equipment behaviour, visualisation, alarms, trends, security and configuration to be encapsulated in reusable object templates.

Engineers can therefore design once and instantiate objects across multiple assets or projects, reducing repetitive engineering work and supporting greater consistency.

Built-in AI assistance

Adroit 11 also introduces the Adroit AI Assistant, built for the new website, directly into the Smart UI Designer. Rather than requiring engineers to leave their development environment to search through documentation, the assistant provides conversational support from within a dockable panel.

It has been trained on official Adroit documentation, knowledge-base articles, video content and help files, enabling users to ask questions in natural language about configuration, features and troubleshooting.

For experienced engineers, this provides a faster route to information. For newer users, it can simplify learning and onboarding.

Python brings new flexibility

Another significant enhancement is native Python scripting within the Adroit Smart UI platform. Python is widely used across technology and engineering environments, and its integration into Adroit 11 gives developers another way to build advanced automation and custom logic.

Engineers can interact with core platform objects and use external development environments such as Visual Studio Code, while a built-in package manager provides access to third-party libraries. The PythonScript Agent extends these capabilities.

It allows Python scripts to execute within the Adroit environment using a dedicated process designed to support system stability.

Applications can include data transformation, system integration and predictive analytics, while scripts can interact with Adroit Agent Servers and access tags and historical data.

A platform ready for what comes next

These major additions sit alongside hundreds of smaller enhancements across the platform. Further developments include direct scalable vector graphics (SVG) file import, next-generation NASA communication drivers, a re-architected Marshal Agent, improved expression handling, bulk object deployment and new Agents such as the Water Balance Agent.

Support for Edge Connectivity and the Adroit Health Monitoring Service means Adroit can be safely used as part of a wider Digital transformation strategy yet remain the stable, core of any operations that can be securely and safely monitored on the Adroit Health Monitoring Platform.

Together, these developments point to the broader objective behind Adroit 11, not simply adding features, but continuing to evolve an established automation platform for the demands of modern industrial environments.

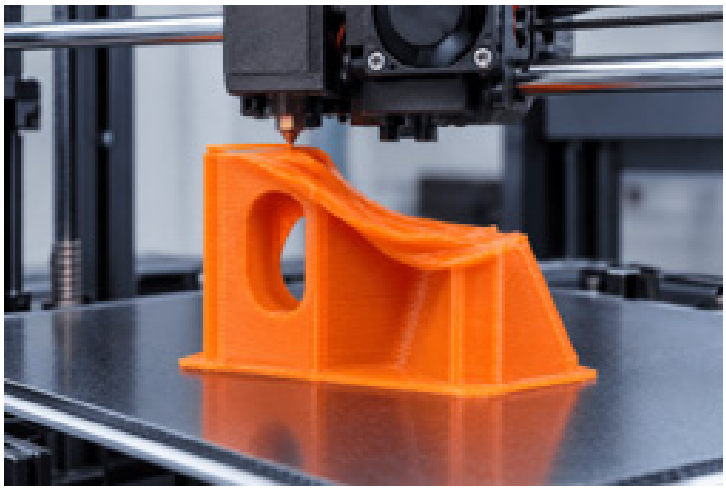
"With Adroit 11, we are giving our customers a platform that is ready not only for what they need today, but for where industrial automation is going next.

"The combination of native 64-bit architecture, stronger cybersecurity, new engineering tools and capabilities such as AI and Python scripting gives organisations more flexibility while retaining the reliability they expect," concludes Adroit Technologies Director Dave Wibberley.

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Eliminating Heat Creep and Sagging in Industrial 3D Printing

Beating Summer Heat in Additive Manufacturing



High performance flexible polymers demand immediate, controlled cooling as they leave the nozzle. In one facility, summer temperatures turned that requirement into a production liability. With the lab sitting at 85°F, the printer's stock fans were effectively decorative, circulating hot air that couldn't solidify the material fast enough.

During a 14hour print, fine overhangs sagged, bridges collapsed, and the team arrived to a heap of warped polymer. Lowering extrusion temperatures weakened the part, bigger fans worsened turbulence, and installing HVAC for a single workstation was dismissed as impractical.

A Practical Fix: EXAIR Adjustable Spot Cooler

The team repurposed an EXAIR Adjustable Spot Cooler already on the shop floor. Mounted to the printer frame and routed to the extrusion zone, it delivered a focused 20°F (-7°C) stream of dry air—far below ambient and exactly where the polymer needed it.

Two features made the difference:

· Toolfree temperature control knob for dialling in anything from ambient to -30°F (-34°C).

· Interchangeable 15, 25, and 30 SCFM generators to match airflow velocity to the polymer's cooling needs.

With instant layer solidification, the print ran flawlessly. No warping, no drooping, no drama.

Why Vortex Cooling Wins

Electric fans can only cool to room temperature. When the room is hot, they simply move hot air. A vortex tube, however, splits compressed air into hot and cold streams, delivering subambient, moisturefree cooling directly to the print.

The result is rapid heat transfer and stable geometry, even in summer conditions.

Stabilise Your Process

Seasonal heat shouldn't dictate part quality. For plastics, metals, or hightolerance additive builds, EXAIR's spot cooling systems offer a zeromaintenance way to keep production consistent.

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Specialist Polymers for Automotive Applications



Improved performance and lower cost can be achieved with the new iglidur/H5 material from igus. Plain bearings made from the material have many possible applications such as windscreen wipers for instance; it must work reliably under heavy loads/- such as heavy rainfall and hail. To make it tougher it has added fibres and filling materials to the base polymer.

They enable the plain bearings to withstand high forces, edge loads, impacts and shocks, even under continuous load and are resistant to chemicals, fuels, oils and high temperatures (up to 200°C).

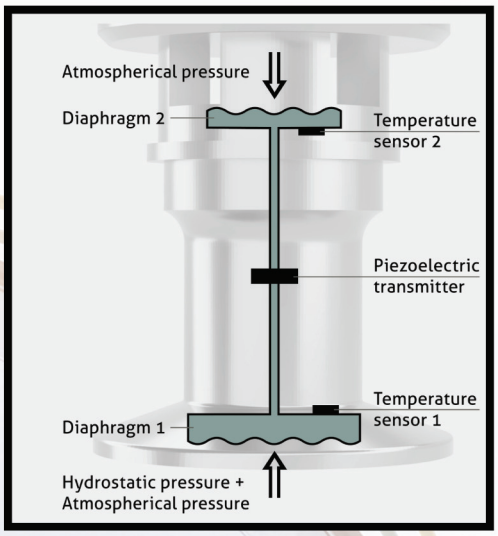
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Beyond the Certificate: Making Quality Systems



For manufacturers and processors, a quality management system should be more than a set of procedures and a certificate on the wall. When implemented properly, it can become a practical tool for controlling processes, reducing risk and driving continual improvement.

For many businesses, the conversation around ISO certification begins with a customer requirement.

- A major customer requires ISO 9001.
- A tender requires certification.
- A new market requires a recognised management system.
- A food business needs to demonstrate robust food-safety controls.

The immediate objective becomes certification. But there is a more important question:

What happens after the certificate is issued?

A management system should not exist simply to satisfy an auditor. It should help management understand how the business operates, where risks exist, where processes can fail and where improvements can be made. That is where the real value lies.

Certification is the outcome — not the objective

Standards such as ISO 9001 provide a structured framework for managing quality. Other standards address different areas of business risk and performance, including environmental management, occupational health and safety and food safety.

The specific requirements differ, but the underlying principle is similar:

Understand the business. Control what matters. Measure performance. Address problems. Improve.

Certification provides independent confirmation that the organisation's management system meets the applicable requirements. But certification alone does not guarantee that a business has good processes.

A company can have beautifully presented procedures and still have employees who do not follow them. It can have completed forms without using the information contained in them. It can conduct audits without addressing the underlying causes of recurring problems.

The difference between a system that exists and a system that works is implementation.

The danger of "paper compliance"

One of the biggest challenges with management systems is allowing the documentation to become the system.

When that happens, employees can begin to see quality as an administrative function rather than part of their everyday responsibilities.

Procedures are written because they are required. Records are completed because someone needs to see them. Internal audits are conducted because the calendar says they are due. Corrective actions are closed because the audit finding needs to be closed.

The business may technically have a management system, but it is not necessarily getting the value it should. A practical system should work the other way around.

The business identifies what needs to be controlled, determines how it will control it, collects useful information and uses that information to make better decisions.

The documentation should support the process — not become the process.

Data is one of the most valuable parts of a management system

Every processing business generates information.

- Customer complaints
- Non-conformities
- Maintenance records
- Audit findings
- Rejections
- Corrective actions
- Production results
- Equipment failures
- Supplier performance
- Waste
- Incidents
- Customer feedback

These are not simply records that need to be filed. They are signals.

When information is properly organised and reviewed, patterns begin to emerge. A recurring customer complaint may indicate a process weakness. Repeated equipment failures may point to a maintenance issue. Supplier problems may be affecting production consistency.

A series of minor non-conformities may reveal a larger systemic problem. This is where a management system becomes useful to management. It turns individual events into information that can be analysed and acted upon.

Risk management should be part of everyday thinking

Modern management systems increasingly place emphasis on risk-based thinking.

For a processor, this should not mean creating another complicated risk register that nobody uses. Risk management should be connected to the actual operation.

- Where could the process fail?
- What could cause the failure?
- What would the consequence be?
- What controls are already in place?

Work for the Business

- How do we know those controls are working?
- What needs to change?

The same thinking can be applied to quality, environmental impact, occupational health and safety, food safety, suppliers, equipment and operational processes.

The objective is not to eliminate every possible risk. It is to understand the risks that matter and manage them systematically.

Integrated systems can make sense for growing businesses

A business may initially focus on one standard because a customer requires it. As the organisation grows, however, additional requirements may emerge.

A manufacturing or processing business may need to address quality, environmental management and occupational health and safety. A food-related business may have additional food-safety requirements.

Managing each system as a completely separate exercise can create unnecessary duplication. Where appropriate, management systems can be integrated so that common processes — such as document control, internal audits, corrective action, management review and continual improvement — support multiple requirements. This can make the system easier to manage and more useful to the organisation.

The best management system is one people can actually use

Ultimately, a management system belongs to the business — not to the consultant and not to the auditor.

Employees need to understand what is expected of them. Managers need meaningful information. Processes need to reflect what actually happens on the production floor. Records need to provide useful evidence. Problems need to lead to corrective action. And management needs to use the information generated by the system to make decisions.

When these elements work together, certification becomes more than a compliance exercise. It becomes a framework for running the business more consistently.

Building a system around the business

There is no value in forcing a company's operations into an unnecessarily complicated management system simply because that is how another organisation operates. The starting point should always be the business itself.

- How does it operate?
- What does it produce?
- What are its customers expecting?
- What are its legal and regulatory obligations?
- Where are the risks?
- Which processes are critical?
- What information does management need?
- And what does the organisation want to improve?

The management system should then be structured around those realities while meeting the requirements of the applicable standard or scheme.

That is the difference between having an ISO system and using a management system to improve the business.



Beyond the certificate

For processors and manufacturers, quality and compliance are not separate from the operation. They are part of it.

The strongest management systems create visibility, accountability and consistency while giving management better information on which to base decisions.

The certificate may be displayed on the wall. But the real measure of a successful management system is what happens inside the business.

MAPI Quality Services works with businesses to develop and implement practical quality, compliance and management systems, including ISO 9001, ISO 14001, ISO 45001, FSSC 22000, GMP, GDP and Feed Safety requirements.

The objective is not simply to prepare a business for an audit. It is to build a management system that works for the business.

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Floating, Fast and Safe Handling of Medical Bags

Using XPlanar in leak detection for pharmaceutical packaging



With the IVB Flex packaging machine, the intelligent XPlanar product transport system combines operational flexibility, process reliability, and traceability.

To make its medical bag handling processes faster and safer, Bonfiglioli Engineering has deployed the magnetic floating technology found in the intelligent XPlanartransport system from Beckhoff as a leak detection solution in its latest IVB Flex packaging machine. The partnership between the two companies played a significant role in achieving the project goals.

In automatic packaging machines, quality control and product integrity do more than just ensure that production stays efficient: most importantly of all, they reliably meet legal requirements and assure traceability. This is particularly true for the pharmaceutical industry.

Bonfiglioli Engineering, part of the TASI Test and Automation Group, has built up extensive expertise in this field over more than 50 years.

Specializing in areas including leak detection, it has gradually expanded its technology portfolio in quality control and assuring the integrity of pharmaceutical packaging.

Challenges posed by flexible bags

Davide Luisari, director of engineering at Bonfiglioli Engineering, explains that three complementary inspection technologies cover the quality control requirements that are typical of the industry:

"The first technology, CCIT (container closure integrity testing), is used to check the integrity of the closure and that the containers are sealed.

"The second one, AVI (automatic visual inspection), identifies visual defects and discrepancies in appearance or function.

"The third technology is HGA (headspace gas analysis), which measures the gases in the container headspace – a very important parameter in some packaging processes."

One or more of these technologies may be brought into play depending on the type of inspection involved. The key difficulty, however, lies in container handling. With medical bags, for example, there is a real risk of damage every time one of them is picked up and fed into the machine.

This is precisely where Bonfiglioli Engineering's solution excels, as Luisari explains: "We don't just sell machines – we support the customer by providing them with a comprehensive consulting service. In a highly regulated sector such as the medical field, what makes you stand out is not only ensuring product quality, but also designing a reliable, repeatable, and truly productive process."

To meet this need, the IVB Flex packaging machine with XPlanar uses magnetic floating technology, which eliminates mechanical contact and therefore wear during product transport, as well as drastically reducing the risk of bag damage. What's more, it ensures end-to-end traceability.

Intelligent, floating product transport

The solution aims to minimize transportation and handling of the product with the help of XPlanar movers. Inside the machine, the leak tests are carried out simultaneously using special bell systems developed by Bonfiglioli Engineering.

To achieve this, the bags are placed on the XPlanar movers, each equipped with a suitable bag holder, and moved under the bell jars. Once the correct position is reached, the system grips the tool – the bag holder – and lifts it until it rests against the base of the bell jar, creating ideal conditions for the test.

A test takes around seven seconds; the bag is pressurized, which allows leaks to be detected based on the pressure difference. Depending on the inspection result, the bag is either forwarded to the station's outgoing line or transported to the reject area.

The entire process takes place without the need to handle the product directly.

Once the bag is loaded onto the mover, it is gently transported between the various test stations, ensuring its integrity and guaranteeing highly reliable and repeatable tests.

The machine has six bell jars as well as a loading station and an automatic unloading station, all of which are extremely compact: together, they have a footprint of just over 5 m².

The system uses eight 155 x 155 mm APM4330 XPlanar movers, which float over a surface of 13 XPlanar tiles: seven measuring 320 x 320 mm (APS4244) and six measuring 320 x 160 mm (APS4242). This results in a high functional density in a relatively small space.

The XPlanar movers are equipped with interchangeable bag holders that the operator can change manually to suit the product type.

The format-changing process is quick and intuitive: all the operator has to do is remove the tool and replace it with one that is suitable for the new format.

The replacement tool can easily be attached using centering pins, which ensure correct alignment and stability during movement.

As Luisari explains: "XPlanar provides a handling solution that allows unparalleled flexibility during format changeovers. This allows us to quickly switch from small containers with a capacity of 50 or 100 ml, for example, to bags with a larger capacity."

In addition to process flexibility, IVB Flex also guarantees excellent standards in terms of precision and quality thanks to the XPlanar movers' high load capacity of up to 1.8 kg.

This opens up more scope for reliable operation and extensive possibilities for developing the system in the future.

A complex challenge with a simple solution

According to Luisari, the XPlanar system made it possible to combine operational flexibility, process reliability, and traceability. However, Beckhoff's technology went even further than this.

Deploying automation based on a C6030 ultra-compact Industrial PC, Luisari explains, helped to simplify the IVB Flex architecture – notably due to implementing TwinCAT as the software platform:

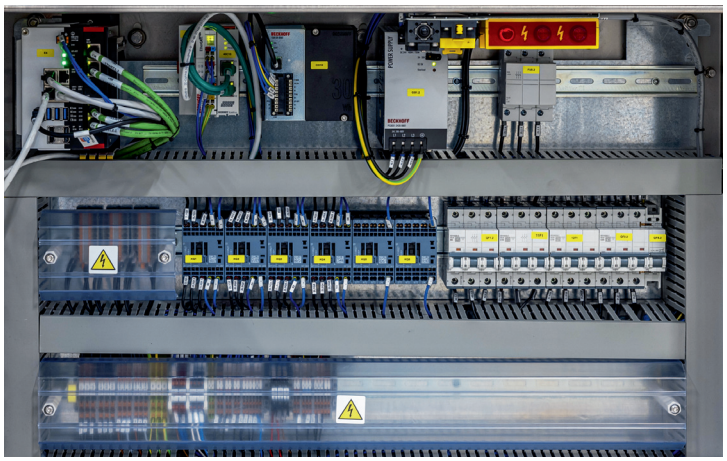
"As we were using these technologies for the first time, we took full advantage of the training offered by Beckhoff. We started with a basic course, then moved on to an advanced course that dealt specifically with the XPlanar system.

"We always had the option of contacting the product specialist if we came across any obstacles or doubts. The TwinCAT programming environment proved to be consistently user-friendly, however, and the prototype was created in just ten months or so – from design and software development all the way through to factory acceptance at the customer's premises. That's a record for us!"

There were also no problems with integration. "Despite a specification restriction imposed by the customer, which required the use of third-party PLCs, our technicians experienced no compatibility or interface problems," explains Luisari.

What's more, there are considerable advantages to be gained in the area of remote maintenance.

The ultra-compact industrial PC from Beckhoff is designed for connection via VPN and allows secure access to the machine, regardless of the installation location.



View of the control cabinet with the C6030 ultra-compact Industrial PC, EK1100 EtherCAT Coupler, EL6631 2-port communication interface, CU8130 UPS, and PS3031 power supply (above, from left to right).

This supports advanced diagnostic activities, identification of any critical points in good time, and early and efficient intervention efficiently to resolve any problems.

Potential for the future

According to Luisari, the productivity of the machine has exceeded the expectations of the customer, a medical manufacturer that operates plants abroad:

"The contactless magnetic floating technology plays a significant role in this by minimizing mechanical wear, requiring less maintenance, and – crucially – ensuring aseptic operating conditions.

However, here at Bonfiglioli Engineering, we're already thinking outside the box.

"The development we are working on involves integrating optical inspection into the machine itself. Similar solutions already exist on the market, but their cost and space requirements make them impractical and economically unviable."

Another challenge lies in artificial intelligence: "We are looking into the use of neural networks to make leak detection and visual inspection even better and reduce the number of false rejects, especially with flexible products such as bags.

"These are developments that require considerable computing power." Luisari adds that, in view of the CPU power that Beckhoff Industrial PCs offer, the aim is to integrate everything – both real-time control and AI – in a single piece of hardware.

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Real-Time Personal Dust Monitoring

Trolex has announced the launch of a personal, real-time particulate monitor for respirable particulates, the XD1+ Personal Dust Monitor.

One million global deaths a year are caused by inhalation of particulates in the workplace, which can be attributed to industries such as construction, quarrying, manufacturing and many others. If deployed correctly and effectively, real-time monitoring can be essential for workplaces wishing to deploy effective control measures for dust exposure and want to improve worker engagement in their health and safety.

The key to reducing the risk is understanding and knowing the risk, then being able to make informed decisions. XD1+ is simple to use, highly durable and lightweight meaning workers are unrestricted in their working day, yet better equipped in knowing the risk their exposed to, allowing workplaces to improve and enforce higher standards.

XD1+ displays instant audio and visual alarms when pre-set limits are breached, allowing for decisions to be made regarding use of PPE and RPE, agile process development and smart deployment of ventilation and extraction systems, reducing costs, improving business efficiency, and ultimately saving lives. Advanced processing algorithm, detects, counts and sizes up to 100,000 particulates a minute, to know exactly how much dust your workforce is exposed to, providing accurate real-time information to save lives.



Low-end sensor resolution, measuring down to 0.1 µm allows for all respirable dust to be accounted for, and now with supporting BreatheLITE software and BreatheMOBILE application, all this collected data can be instantly accessed for immediate analysis of dust levels on site. Real-time really does mean real-time with XD1+ and supporting BreatheLITE Software.

Featured on-site in real-world applications with industry leading names such as Hinkley Point, HS2, Worktop Fabricators Federation and AirMatters, XD1+ is already demonstrating the ability to reduce worker exposure to hazardous respirable dust, deployed alongside existing processes and control measures.

Adrian Eccles, Trolex Technical Product Manager said: "XD1+ and the real-time monitoring capabilities it provides are instant, in the moment, meaning you can do something about a problem and implement control measures. It allows you to try a new control measure and have a very quick indication of whether that has been successful or not in reducing the hazard."

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Choosing Flow Technology



When selecting a flowmeter, the first question is usually: "What are we measuring?" But that is only the starting point. For gas and steam applications, you also need to consider:

- What is the pressure?
- What is the temperature?
- What is the flow range?
- Is the gas dry or wet?
- What is the pipe size?
- Do you need volumetric or mass flow?

Different flow technologies are suited to different process conditions. Bass Instruments offers a range of technologies for industrial flow measurement, including vortex, thermal mass and differential pressure solutions.

The goal is not simply to select a flowmeter. The goal is to select the right measurement technology for the application.

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Legrand to Showcase Integrated Data Centre Solutions at Africa Tech Festival



Legrand South Africa will showcase its comprehensive data centre solutions portfolio at Africa Tech Festival, to be held at the Cape Town International Convention Centre, from 17 to 19 November 2026.

It is critical, as investment in cloud services, artificial intelligence and digital transformation accelerates across Africa, that supporting infrastructure develops at the same pace.

Data centres need resilient and energy-efficient systems that can be expanded as demand grows, while maintaining the continuity required by mission-critical operations.

Legrand's exhibit at Africa Tech will showcase the company's uninterruptible power supply systems, busbar power distribution solutions, transformers, data centre cabinets and racks, intelligent power distribution units, precision cooling systems and wire mesh cable management solutions.

Together, these technologies address important data centre requirements, including power distribution, business continuity, cooling, structured cabling and containment.

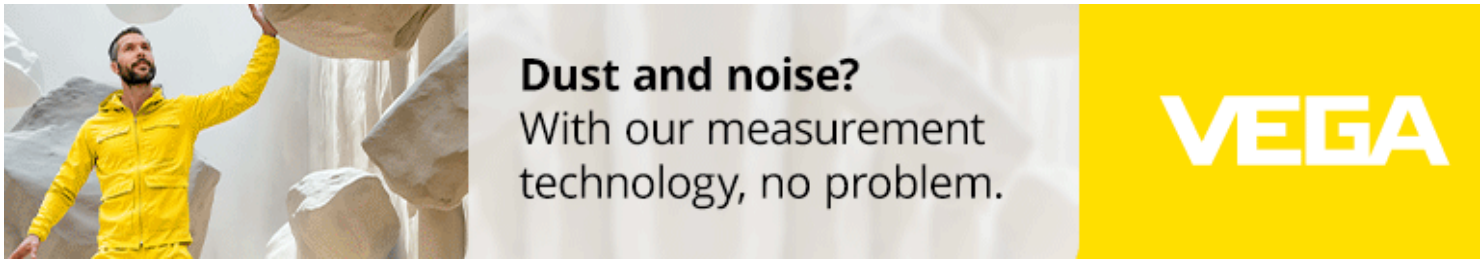
By offering technologies that support the data centre as an integrated environment, Legrand makes a meaningful to the infrastructure needed for Africa's growing digital economy.

These solutions extend from the reliable distribution and management of power, to equipment protection, cooling and the physical organisation of data and electrical cabling.

Legrand data centre specialists will be available throughout the event to demonstrate the solutions on display, provide technical insight and discuss how these technologies can be tailored to specific infrastructure requirements.

The event gives Legrand an opportunity to demonstrate its role within this expanding ecosystem and show how integrated data centre technologies can support the rapid development of digital infrastructure and artificial intelligence across the continent.

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Partnership Delivers CloudtoEdge Solution for



Schneider Electric, a global energy technology partner, its industrial software subsidiary AVEVA and Strategic Alliance Partner, 4Sight OT Automation, a subsidiary of 4Sight Holdings, are helping South African wastewater treatment specialist Calcamite, to accelerate the digital transformation of its modular wastewater treatment plants through a scalable Edge-to-Cloud automation solution.

Testament to the success of the solution is Gourikwa Coastal Nature Reserve, situated within the UNESCO recognised Gouritz Cluster Biosphere Reserve and which served as the first deployment site.

The pilot implementation successfully demonstrated the value of Schneider Electric's software-defined automation architecture and AVEVA Connect-based monitoring environment and subsequently won the illustrious 2026 AVEVA Sustainable Impact Award.

Calcamite, owned by JoJo Tanks, is now expanding the innovation across its growing network of modular wastewater treatment plants.

More than five sites have already been connected in less than six months by 4Sight, with approximately 30 plants expected to be online by the end of the year and around 100 anticipated by the end of next year.

Moving from manual monitoring to intelligent operations

Calcamite's modular wastewater treatment plants are designed for a myriad of locations, often remote .

The treatment plants enable wastewater to be safely treated at source before being returned to the environment or reused for applications such as irrigation.

And as the demand for decentralised water treatment continues to grow, the company recognised the opportunity to complement its treatment technology with intelligent automation and remote visibility.

To support this exciting new phase, 4Sight developed and implemented a scalable digital automation platform built on Schneider Electric's open, softwaredefined industrial automation system, EcoStruxure Automation Expert.

The initial pilot implementation utilised AVEVA Connect as the cloud monitoring and visualisation platform to validate the concept.

Building on the success of the pilot, the broader rollout has evolved into a cloud-based monitoring and analytics architecture designed to support large-scale deployment across Calcamite's growing fleet of wastewater treatment facilities.

The solution entailed replacing traditional manual controls with modern software-defined automation which now allows Calcamite to:

- Remotely monitor plant performance,
- Proactively schedule maintenance.
- Analyse operational trends.
- Rapidly onboard new installations using a standardised digital architecture.

Smart Water Management

Explains Danie Badenhorst, Managing Director OT Automation at 4Sight OT Automation "The real value of this solution lies in its scalability. We proved the concept at Gourikwa using Schneider Electric's EcoStruxure Automation Expert together with AVEVA Connect as the pilot monitoring platform.

"That successful implementation gave us the confidence to standardise the architecture and create a scalable cloud-based monitoring solution that can now be deployed quickly and consistently across Calcamite's growing fleet,"

Each installation follows the same proven software architecture which means engineering time is significantly reduced while maintaining consistent operational performance across every site. The solution also creates the opportunity to retrofit Calcamite's existing installed base of more than 2,000 wastewater treatment plants across Southern Africa.

Advanced monitoring and reliability

The Edge-to-Cloud solution provides Calcamite with continuous insight into plant operations regardless of location. Operational teams can monitor equipment remotely, receive real-time alerts, identify maintenance requirements before failures occur and validate plant performance using live operational data.

In addition to providing deep operational visibility, the platform has been architected to support future artificial intelligence and advanced analytics initiatives.

By consolidating telemetry, operational events and performance data into a structured cloud-based environment, Calcamite now has access to high-quality, AI-ready data that can be used to generate operational insights, management reports and performance analysis.

The successful Gourikwa pilot established the digital foundation required for these future capabilities.

As the solution scales across the broader wastewater fleet, the platform can be progressively enhanced with artificial intelligence services, advanced analytics and intelligent operational assistants to further improve decision-making, maintenance planning and operational efficiency.

Today, Calcamite already benefits from AI-ready data extracts that support reporting and operational analysis workflows.

Future phases of the solution may incorporate AI agents and advanced analytics directly into the platform architecture, enabling automated interpretation of plant performance, anomaly detection, predictive maintenance recommendations and natural-language interaction with operational data.

The increased visibility also enables Calcamite to better understand how each plant is performing under varying operating conditions.

For example, by analysing inflow volumes and performance trends over time, the company can optimise future plant designs while ensuring existing installations continue to operate at peak efficiency.

Importantly, the solution also enables Calcamite to evolve its customer offering beyond equipment supply by introducing proactive monitoring and maintenance services that improve reliability while giving customers greater confidence in long-term plant performance.

"Our plants are often installed in very remote locations across Southern Africa, including neighbouring countries where access can be challenging," says Sebasti Badenhorst, Chief Executive Officer of Calcamite.

"Reliability is absolutely critical because these facilities must continue operating every day. The success we've achieved at Gourikwa has demonstrated just how stable and dependable this solution is, giving us complete confidence as we expand it across hundreds of additional sites.

"It also enables us to provide our customers with a completely new level of service and operational assurance."

Driving sustainable water management

The Edge-to-Cloud solution offers benefits beyond operational efficiency, delivering measurable environmental benefits:

- Continuous monitoring ensures wastewater treatment plants operate consistently and effectively, protecting surrounding ecosystems while enabling treated water to be safely reused for irrigation and other nonpotable applications.
- Localised treatment of wastewater close to its source reduces dependence on centralised infrastructure, supports more efficient water management, and contributes to broader sustainability objectives.

"This project demonstrates how digital innovation can help solve real-world sustainability challenges while creating tangible business value," says Canninah Dladla, Cluster President for SSA at Schneider Electric.

"Calcamite is now benefiting from a scalable digital platform that is transforming how distributed wastewater treatment plants are managed.

"From one award-winning implementation, the solution is now scaling rapidly across Southern Africa, demonstrating how software-defined automation can support both sustainable growth and long-term operational resilience," she adds.

With hundreds of new installations planned and opportunities to modernise existing plants, the partnership between Schneider Electric, 4Sight, Calcamite and AVEVA demonstrates how successful pilot innovation can evolve into scalable operational solutions.

The award-winning Gourikwa pilot established the foundation for a broader Schneider Electric Edge-to-Cloud strategy that continues to strengthen performance while advancing sustainable, resilient water management across Southern Africa.

Unmatched reliability. Fits local needs.
Harmony Electromechanical Relays
Where to buy

Schneider Electric

Ensure Contamination Control While Keeping Workflows Efficient



Maintaining radiation safety at access points is essential but ensuring that monitoring systems themselves remain contamination-free is equally important.

Berthold's HFC Scan offers a modern, robust and easy-to-decontaminate solution for the rapid and reliable detection of alpha and beta/gamma contamination on hands, feet and clothing.

Engineered for nuclear facilities, laboratories and controlled areas, the HFC Scan combines rugged durability with intuitive operation, providing fast, accurate, and dependable contamination monitoring.

Key strengths:

- High sensitivity - ZnS(Ag) thin film scintillation detectors ensure reliable detection without the need for gas-filled systems.
- Suitable for alpha and beta/gamma contamination measurements.
- Rugged, powder coated steel housing designed for durability and easy decontamination - plus transport wheels for mobility.
- Simultaneous monitoring of hands and feet activated automatically when stepping onto the footboard.
- Touch screen operation with a clear 10.1" colour display for easy, guided use by all personnel.
- Flexible measurement modes, with adjustable measuring time and storage for more than 2,000 measurement records.
- Comprehensive connectivity including USB, Ethernet, RS232 and more.
- Optional signal tower for improved visual alarms.

The HFC Scan is built for organizations that need quick, dependable personnel screening and easy decontamination — helping ensure contamination control while keeping workflows efficient.

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New Generation of Optical Inline CO_2 Measurement



With the CARBOTEC NIR, Centec introduces a new optical approach to CO_2 measurement in beverage production. The key innovation: CO_2 is measured directly and optically – without consumables and without interference from other dissolved gases.

This provides a reliable basis for continuous process control, even in applications where different gases are present in the product.

Additional benefits include:

- No moving parts or consumables - virtually maintenance-free operation
- Direct inline CO_2 measurement
- No influence from other dissolved gases
- No product loss during measurement
- Hygienic and CIP-capable design

The latest CARBOTEC NIR units have now successfully completed tests in beer, including comparison measurements with established reference equipment.

The results confirm the potential of this new generation of optical CO_2 measurement for beverage production.

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New Compact, Magnetic Air Holster Safety Air Gun Mount



South Africa's industrial landscape is evolving fast. As factories modernise, maintenance teams streamline operations, and production managers push for tighter safety compliance, the demand for practical, durable accessories has never been higher.

Into this environment steps EXAIR's Model 5930 Air Holster, a compact, magnetic mount designed to keep Safety Air Guns exactly where they should be: secure, accessible, and out of the way when not in use.

It's a small accessory, but it speaks directly to the realities of South African workshops, where efficiency is hardwon and every improvement counts.

A Solution to a Familiar Problem

Walk through any fabrication shop, machining bay, or maintenance area and you'll see the same issue: air guns lying on benches, tucked behind machines, or left on the nearest flat surface.

It's not carelessness, it's the pace of industrial work. But misplaced tools slow down operators, create clutter, and introduce avoidable safety risks.

The Air Holster addresses this with a simple, disciplined approach: give every air gun a home. Its fulllength front opening allows operators to slide longer air guns in and out without snagging, even when wearing gloves.

The holster's magnetic base grips firmly to steel surfaces, making it ideal for mills, lathes, cutoff saws, CNC enclosures, and maintenance carts.

In facilities where layouts shift and workstations adapt to production needs; this flexibility is invaluable.

Designed for South African Conditions

Local industry is tough. Heat, dust, vibration, and constant movement define the workday.

Accessories need to withstand that environment without becoming another point of failure.

The Air Holster's rugged construction and strong magnetic attachment ensure stability even in highactivity zones.

Operators can mount it where it makes sense for their workflow, on machine frames, tool cabinets, or steel workbenches, and reposition it as tasks change.

This adaptability supports lean manufacturing principles increasingly adopted across South Africa's automotive, miningsupport, and general engineering sectors.

It also contributes to safer workspaces. Tools stored properly reduce trip hazards, prevent accidental activation, and help maintain compliance with OHS requirements.

Part of a Broader Productivity Ecosystem

The Air Holster is the latest addition to EXAIR's growing suite of accessories designed to enhance Safety Air Gun performance and operator convenience.

South African users already rely on:

· Extension Pipes for reaching deep recesses and awkward angles

· Chip Shields to protect operators from flying debris

· Stay Set Hoses for applications requiring repeated repositioning

· Service kits and replacement parts to keep air guns performing reliably

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Pressure is a Process Variable, Not Just a Number



ELS Steam Pressure Gauge



P42 Pressure Sensor



L3 Continuous Level and Pressure Sensor

Pressure measurement plays a much bigger role in process control than simply displaying a value on a screen. In a food, beverage, dairy or pharmaceutical process, pressure can influence:

- Product transfer
- Pump performance
- Filtration
- Filling and dosing
- Tank conditions
- Process stability
- Equipment protection

The challenge is not simply to measure pressure.

The real question is: Are you measuring the right pressure, at the right point, with instrumentation suited to the process conditions?

Temperature, cleaning cycles, hygiene requirements, vacuum conditions and the characteristics of the process can all influence instrument selection.

That is why pressure measurement should be considered as part of the complete process application, not as an isolated instrument specification.

ELS Steam Pressure Gauge

The ELS Steam Pressure Gauge 90mm is engineered for hygienic steam applications with extreme pressure and temperature conditions.

Designed to withstand up to 600 psi (40 bar) and 400 °F (205 °C), it reliably delivers accurate, stable readings where conventional gauges or syphon-equipped devices often fail.

Built for long service life, the ELS is the hygienic solution for demanding food and beverage processes involving hot steam, rapid thermal cycling, and sterilization.

- For steam applications up to 40 bar / 600 psi and 205 °C (400 °F)
- The heat protection technology in the extended stem shields internal components
- Rugged Design with welded stainless-steel case resists shock, vibration & corrosion
- Long-term accuracy through high-temperature stabilized diaphragm
- Ideal for hygienic applications like SIP, UHT pasteurization & culinary steam

P42 Pressure Sensor

The P42 Pressure Sensor is a compact, precise, and economical solution for pressure and level control in hygienic applications.

Designed with robust stainless-steel construction and high overpressure resistance, it delivers reliable performance even under demanding conditions.

With IO-Link digital communication, commissioning and adjustment are fast and simple, while high-speed, accurate data ensures stable process control.

- Compact, space-saving stainless-steel design
- High Accuracy for reliable measurement up to 40 bar
- Overpressure Protection up to 100 bar

- Temperature Process range up to 125 °C, with optional cooling section up to 250 °C
- Vacuum Resistant
- Flexible application through absolute, relative, or compound pressure ranges
- IO-Link Communication for easy integration with for fast commissioning

L3 Continuous Level and Pressure Sensor

The L3 Level and Pressure Sensor sets new standards in accuracy and durability.

The L3 is particularly suitable for process pressure control in critical environments, or for superior hydrostatic level measurement.

This applies specifically for smaller vessels or for high and changing process temperatures for which pressure sensors were previously not considered precise enough.

While conventional sensors show a temperature drift of up to 0.4% per 10°C, the L3 performs with only 0.03%.

Advanced tank linearization, integrated density compensation, and Flex-Hybrid Technology (IO-Link + 4…20 mA) and a dedicated Pharma version complete the performance

- State-of-the-art temperature compensation reduces errors associated with process temperature changes
- Direct output of volume, level or pressure
- Integrated tank linearization and density compensation
- New electronics and robust design for toughest productions environments
- Flex-Hybrid Technology (IO-Link + 4…20 mA in parallel)
- Modular design, easy to replace a component in the field
- Pharma version available

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Think Dosing is Just Filling? Think Again



Brouwersnös drew attention in the brewing industry with a unique dosing application that combined creativity and innovation.

By dosing natural fruit flavours directly into bottles during the filling process, the brewery successfully created five different fruit-flavoured beers from a single batch.

This was made possible by Bronkhorst's high-speed, high-precision Coriolis dosing technology, powered by FLUIFILL® firmware and decades of low-flow expertise.

While the result tastes great, the real story is what happens behind the scenes.

This project shows how precise liquid dosing gives manufacturers the freedom to innovate faster, produce more flexibly, and reduce waste.

From the craft beer world to industries where reliable, reproducible, and highly accurate dosing is critical, the challenge remains the same: delivering exactly the right amount, every single time.

- Pharmaceuticals
- Chemicals
- Food & Beverage
- Battery production and many others

The better you control the liquid, the better the outcome. This principle inspired the development of the new CORI-FLOW™ series. Designed for the next generation of liquid flow measurement, control, and dosing, it empowers manufacturers to achieve even higher levels of accuracy, reliability, and confidence.

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How Power Instability Damages Manufacturing Fa



In manufacturing environments, power instability rarely shows up as a single dramatic failure. It works quietly in the background, degrading equipment, disrupting processes, and slowly eroding production reliability.

Across Southern Africa, where grid conditions can be inconsistent, this is an everyday operational reality. Facilities that rely on a stable electrical supply for motors, control systems, and automated lines are particularly exposed.

By the time failures become visible, the underlying damage has often been building for months.

Where Power Instability Begins

Manufacturing plants operate a mix of heavy and sensitive loads. Large motors, compressors, and heating systems sit alongside PLCs, sensors, and control boards. All of these depend on a stable voltage supply, even if their tolerance levels differ. Voltage fluctuations typically originate from:

- Weak or inconsistent grid supply
- Sudden load changes within the facility
- Generator changeovers
- External faults or disturbances

These fluctuations do not need to be extreme to cause damage. Small, repeated deviations are often more harmful because they go unnoticed while steadily impacting performance.

What Unstable Power Actually Does to Equipment

Voltage instability affects equipment in ways that are not always immediately obvious. Motors may run hotter than intended, insulation begins to degrade, and electronic components experience irregular stress. Control systems become unpredictable, leading to nuisance trips or inconsistent operation.

At the same time, systems often draw more current to compensate for poor voltage conditions. This places additional strain on already stressed components.

The result is a gradual decline in reliability. Equipment does not necessarily fail all at once. Instead, performance drops, faults become more frequent, and maintenance teams spend more time reacting than planning.

Operational Impact Inside the Plant

From a production perspective, the consequences are rarely isolated. A voltage disturbance affecting one part of a process can interrupt an entire production line. Restarting systems takes time, particularly where sequencing or temperature control is involved. In some cases, partially processed products must be discarded. Over time, this leads to:

- Reduced throughput
- Increased material waste
- More frequent stoppages
- Greater pressure on maintenance teams

These are not always attributed directly to power quality, which is why the root cause is often overlooked.

Pro Tip from Standby Systems

In many manufacturing facilities, the first signs of power instability show up as "random" equipment faults or nuisance trips rather than full failures. If your maintenance team is repeatedly resetting drives, replacing control components, or investigating intermittent issues without a clear cause, it is often worth reviewing your incoming power quality. Addressing voltage instability early can prevent a much larger pattern of equipment degradation and production disruption.

The Role of Voltage Stabilisers

High-precision three-phase voltage stabilisers address one part of the problem by regulating incoming supply and maintaining a consistent output voltage.

This improves operating conditions for motors and control systems, supports more stable performance, and reduces unnecessary electrical stress.

However, stabilisers operate only while power is present.

Where Stabilisers Reach Their Limit

When supply is interrupted completely, voltage regulation is no longer relevant. Production stops, systems shut down, and processes are disrupted regardless of how stable the voltage was beforehand.

cilities and How to Protect Industrial Equipment

This is where many facilities fall short. Voltage stability is addressed, but continuity is not.

A Practical Power Protection Approach for Manufacturing

In practice, protecting a manufacturing facility requires two things:

- Stable voltage under normal operating conditions
- Continuous power during interruptions

This is achieved by combining voltage stabilisation with industrial UPS systems.

In facilities where efficiency, footprint, and advanced monitoring are priorities, a Riello Sentryum three-phase UPS system offers a high-performance solution for maintaining clean, stable, and continuous power. An online double-conversion UPS continuously conditions incoming power and provides immediate backup during outages.

The performance and reliability of a UPS system also depend heavily on UPS battery performance and reliability, which plays a critical role in ensuring continuous operation during power interruptions.

Equipment is supplied with a clean, uninterrupted output, regardless of what is happening upstream.

UPS System Design for Industrial Environments

Manufacturing environments place specific demands on a UPS system design.

Loads are often mixed, with large inductive equipment operating alongside sensitive electronics.

Electrical conditions may be harsh, particularly in facilities with heavy machinery or variable processes. Industrial three-phase UPS systems are designed to handle these conditions. They provide:

- Consistent output under fluctuating loads
- High tolerance for electrical disturbances
- Reliable performance during outages

For more demanding applications, transformer-based systems such as the Riello Master MPS industrial UPS system are well suited to handling large motors and complex load profiles while maintaining stable power delivery.

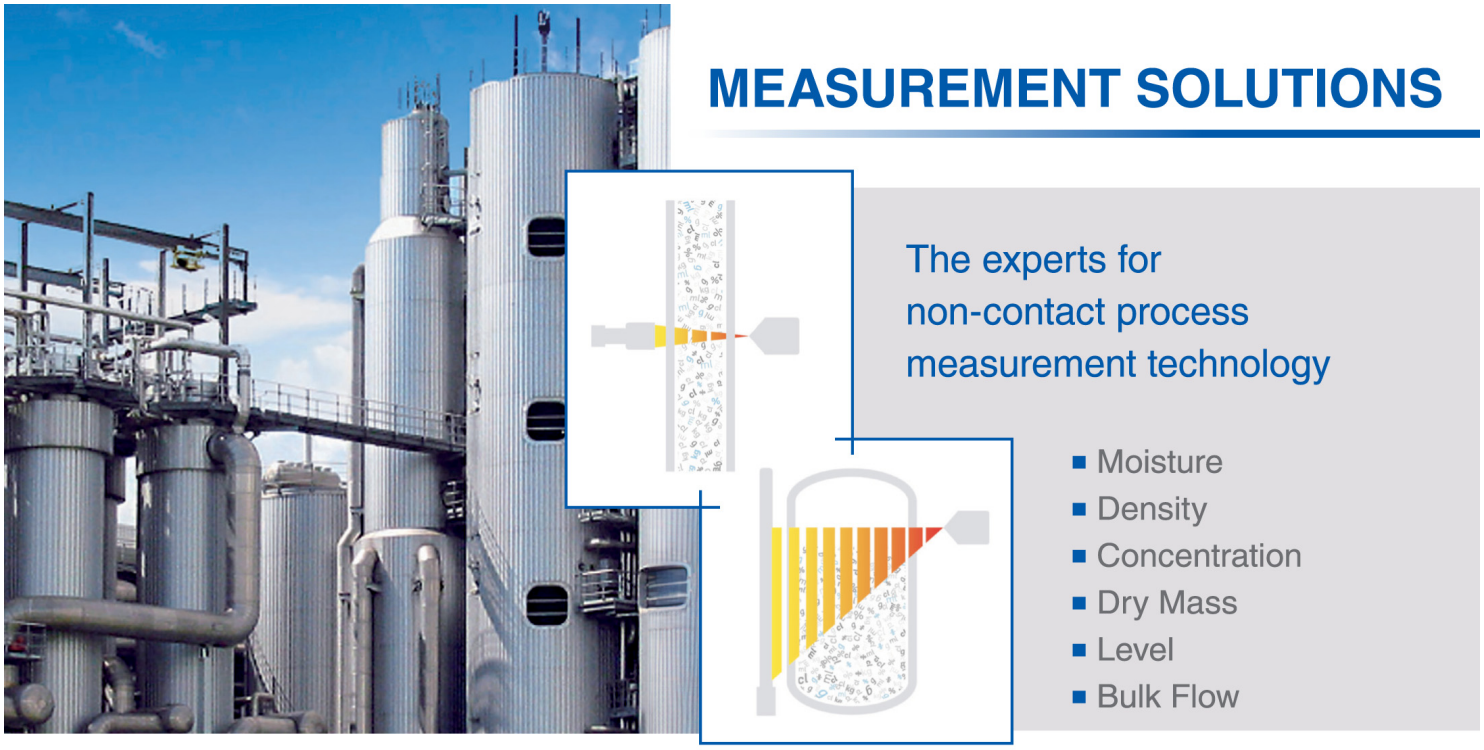
Designing the Right Power Protection Strategy

Power quality issues in manufacturing are rarely solved with a single intervention.

Addressing voltage alone leaves facilities exposed to outages. Focusing only on backup power ignores the long-term effects of an unstable supply.

A considered approach that combines voltage stabilisation with a properly specified UPS system design provides a more reliable foundation for production.

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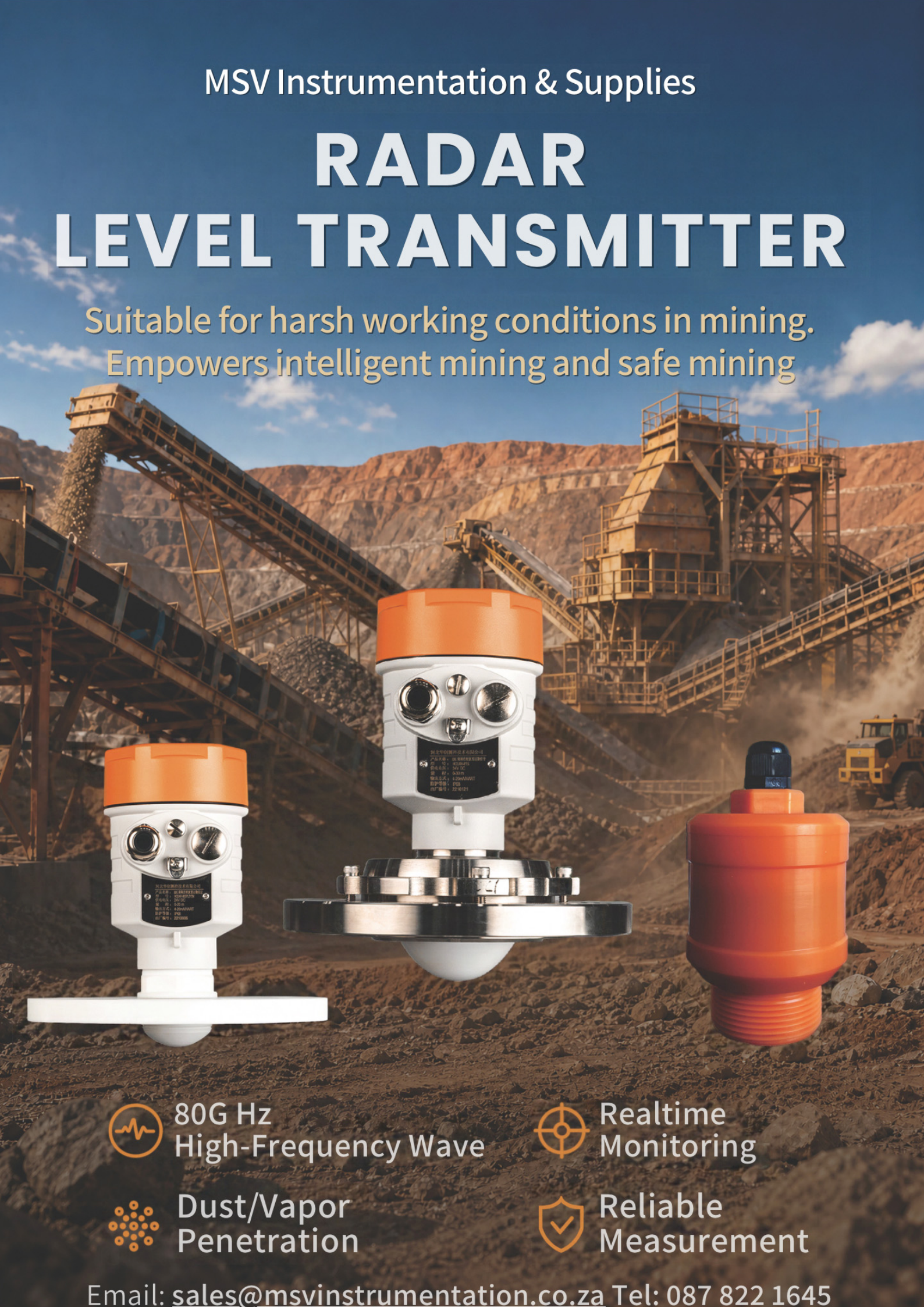


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