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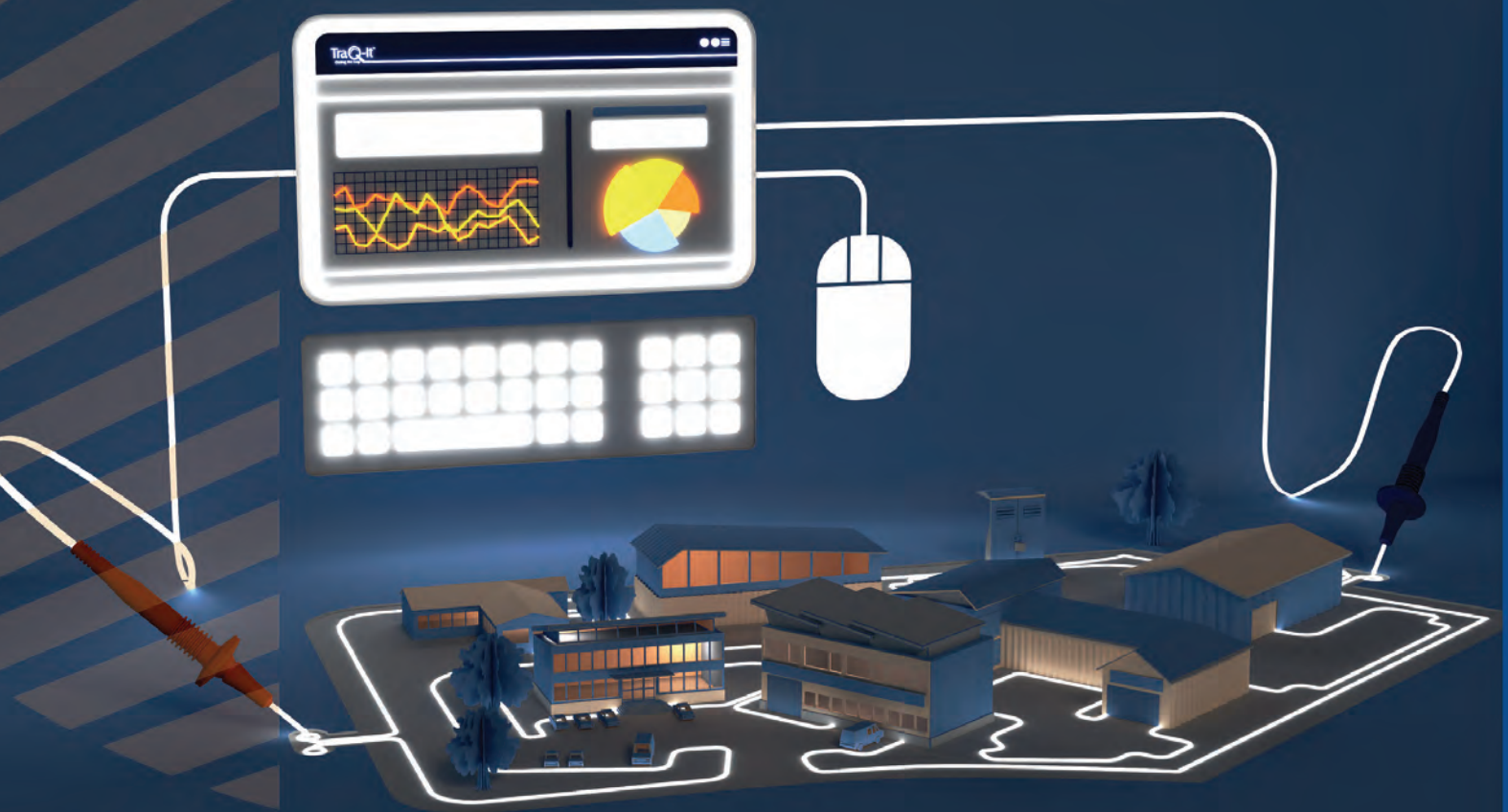


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## COVER STORY

In this month's cover story, Yosuke Kobayashi, Product Marketing Manager, Industrial Microscopy EMEA at Olympus takes a closer look at digital microscopes for electronics inspections.

"Across the electronics industry there is a need for inspecting components and finished products with clear images and micrometer precision. Digital microscopes combine the versatility to tackle a wide range of specimens with guaranteed accuracy in measurement.

"Digital microscopes provide flexible, easy inspections and are designed for industry. With the digital camera at the center, digital microscopes show specimens directly on a computer screen, thereby avoiding the need for eyepieces. This setup gives users a more comfortable, ergonomic experience, which is particularly important in high-throughput settings, such as quality control, where users often spend long hours working at the microscope.

"Fully computer-controlled digital microscopes are fast becoming the standard in industry. Here, users can simply place a specimen on the microscope and carry out setup, imaging and analysis from their computer. Inspections that require traceable documentation and measurements with guaranteed accuracy particularly benefit from this workflow.

"In electronics manufacturing, digital microscopy has long been the workhorse for inspections all along the value chain. Here, we look at examples where the latest generation of digital microscopes deliver reliability and real ease of use to the inspection workflow.

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# Electrical Engineering

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# AUTUMNAL OPTIMISM



Hello and welcome to the October issue of *Electrical Engineering* magazine, which this month features specialist content and commentary from a wide range of sectors of the industry including the latest in Enclosures, Safety in Engineering and Electrical Equipment. We have in-depth articles on Lighting & Lighting Controls, see what's happening in the Test & Measurement sphere, and identify new technologies in Batteries & Chargers.

As the days get shorter and the nights get longer, and Autumn is well and truly here, it's important to look at the bright side of things. Especially with all the turmoil to our industry, and indeed the entire world, that continues to persevere throughout this year, we must look at the successes and collaborations that have served and benefitted people and businesses. It's been very difficult, if not totally impossible, to keep calm and carry on, and daily life has been forever changed. But the industry has adapted, and working together has become the norm, with new partnerships, advice sharing and design collaborations being constantly announced. There's been a big push already over the last few years to fill the skills gap, and since the pandemic, companies have been looking at new ways of training the next generation of engineers. We will get through this, and we will continue to have a thriving industry that innovates, and with sustainability at the forefront of people's mind, we will create a green future for all. This is my hope, and with the evidence coming from the industry over the last few months, I feel sure that we will succeed.

If you would like to write for the magazine on any given topic within the industry then please don't hesitate to get in touch. This is your industry and I want to offer you a platform to speak and engage with opinions from the marketplace. Please email [nmarriott@datateam.co.uk](mailto:nmarriott@datateam.co.uk) or call 01622 699 194 to discuss editorial opportunities.

In the meantime, please enjoy reading this issue of *Electrical Engineering*. I hope you find it informative, intelligently curated and inordinately useful.

Stay safe,

**Niamh Marriott**  
Editor



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## Waning grid supply emphasises need for decentralised energy



Following a warning of short supplies of electricity over the next few days from National Grid, Aggreko is advising industry still reliant on grid supply to look towards decentralised energy solutions.

This week, National Grid explained that unplanned power outages and unusually low wind

speeds have been major contributors in low levels of electricity. It is the second warning of its kind in the last month in the UK, highlighting the growing risk industry faces when relying on the local grid infrastructure.

Decentralised energy solutions may offer an answer, according to Aggreko. Enabling users to generate energy on-site and lessen overreliance on the national grid, technologies such as solar power, combined heat and power (CHP) and battery storage, offer security of supply while lowering overall carbon emissions.

Chris Rason, Managing Director, Aggreko Northern Europe, said: "We understand the challenges facing the industry when it comes to reliance on grid supply. As recently as August 2020, we found that grid limitations were a key cause of power outages in the data centres. Last year, in our report on decentralised energy, 82% of key energy decision makers told us that power continuity was a major or significant concern to their business.

"Decentralised energy solutions offer a solution to remove reliance on the grid, freeing up the stretched energy supply. However, one challenge to overcome is the cost. We would encourage UK industry to consider long-term hire as a solution, ensuring that any plans to implement on-site generation are both successful and cost-effective"

The latest news follows the government's pledge for a clean-energy revolution, which aims to power every UK home by wind within 10 years. According to Aggreko, the latest electricity shortages highlight the need for more 'bridging gap' solutions, as Chris Rason explains: "October appears to be the month for wind power: highlighting both the benefits and risk of overreliance. If the UK is to successfully implement a wind energy strategy to its national electricity supply, bridging gap solutions will be critical.

"One example could be battery technology. While it is not a new concept, it is still costly for many companies to purchase on an industrial scale. However, the good news is that it is more accessible now, when compared to three years ago, thanks to progress made in the rental space."

Battery solutions can help alleviate technical difficulties associated with early-stage decentralised energy schemes, mitigating issues such as low and transient loads, alongside voltage and frequency fluctuations. Aggreko offers fully integrated, plug-and-play battery storage solutions to ensure maximum system effectiveness and efficiency.

## HONEYWELL AND VERTIV TO IMPROVE SUSTAINABILITY FOR DATA CENTER OPERATIONS

Data centers help enable the online applications that people depend on for work, entertainment and communications, but they require significant power to move information around the world. Today, two industry leaders announced a collaboration to create more sustainable and efficient data center operations.

Honeywell, a global leader in connected buildings, and Vertiv, a global provider of critical digital infrastructure and continuity solutions, will work together to create integrated solutions to optimize data center sustainability, resiliency and operational performance. These solutions are expected to be available in 2020.

The partnership builds on Honeywell's industry-leading building management systems (BMS), operational software, and safety and security products along with Vertiv's uninterruptible power supply (UPS), power distribution, thermal management, infrastructure monitoring and modular solutions to enable operators of hyperscale, large enterprise, co-location and edge data centers to integrate multiple domains of data within a data center. The companies will leverage building-operations data to drive optimisation of operations, reducing energy use and costs while improving data center performance and sustainability.



"Data centers face similar challenges as other buildings that have disparate systems that were not designed to work together, but they experience these challenges on a greater scale," said Vimal Kapur, president and CEO, Honeywell Building Technologies. "We look forward to collaborating with Vertiv to offer integrated solutions that make it easier for data center operators to distill the mountains of data they pull from their equipment into actions that create more efficient and environmentally friendly operations."

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## Check approval for Category 3 Control fire performance cables, warns AEI Cables



Specialist AEI Cables is highlighting the need to use only approved cabling in critical signal and control equipment in the event of a real fire with the announcement of a revised version of the Code of Practice covering these areas of performance.

The equipment served by these cables - including smoke and heat extraction systems - assists fire services in the case of firefighting and a safe evacuation in the case of life safety. As the only supplier in the UK with independent approval from LPCB for BS8519 Category 3 Control fire performance cables with a fire survival time of up to 120 minutes, AEI Cables is highlighting the reference in the new revised version of the standard.

Graham Turner of AEI Cables, said: "The standard clearly references and clarifies the products and levels of performance that should be used for all parts of the supply chain from specifiers to contractors and installers.

"We should point out that anything inferior installed is dangerous and could lead to some of these systems simply not surviving in a fire with the dangers that brings. These cables reduce the risk to life through the reduction of harmful smoke, toxic gases, and reduced flame spread. We should all strive to achieve the highest performance possible.

"Fire and rescue services depend

on these systems to help fighting a fire and the safe evacuation of those who may be in the building – installing the wrong products can be catastrophic."

The applications of Category 3 Control fire performance cables also applies to evacuation alarms for the disabled in care homes, emergency voice communications systems and voice alarm systems in relevant buildings including tall buildings, office spaces, hospitals, care homes, shopping malls and stadia.

AEI Cables' Firetec Enhanced cabling has been approved and certified by LPCB to BS8519 (Annex B), Category 3 Control in addition to Category 2 Control. The BS Code of Practice under BS8519 contains six categories of cables, three for power cables and three for control cables each covering survival times of 30, 60 or 120 minutes.

Using the very latest in technology and science, the Firetec Total Fire Solutions range offers Mineral Insulated Cabling (MIC), Firetec Enhanced fire performance cabling, accessories and technical support from the AEI Cables distribution facility at Washington, Tyne and Wear.

All AEI Cables' products are supplied with approvals from independent bodies including BASEC and LPCB. It also holds approvals from organisations including Lloyds, the MoD, Network Rail and LUL and works to international standards around the world.

## Synaptec enters MV market following new partnership with ITL



Power technology company Synaptec has announced a new partnership with Instrument Transformers Limited (ITL) which will open up new market opportunities for both companies.

The partnership has been formed in response to changing customer demand as the power industry adapts to the challenges presented by decarbonization and decentralization. By marketing Synaptec's unique photonic sensing technology alongside ITL's transformer & transducer products, ITL's customers will now be able to access complete software and hardware solutions to meet these challenges.

Founded in 1973, ITL manufactures bespoke current and voltage transformer solutions for electrical switchgear manufacturers and electricity utilities worldwide. The inclusion of Synaptec's sensor technology within ITL's current transducers brings new market opportunities for both companies; for Synaptec the medium voltage market and for ITL the high voltage market.

Saul Matthews, commercial director at Synaptec, said: "This development of our existing relationship with ITL marks an important milestone for both businesses at a time when the power sector is undergoing the biggest transformation we'll see in our lifetimes. ITL's long standing and trusted supplier status makes them the ideal partner to help their customers embrace new instrumentation technologies with confidence. Together we will help with automation of condition monitoring, improved wide area protection schemes and optimised asset management costs.

ITL's managing director, Ray Porrelli, said: "This is a unique opportunity to expand our scope of service to the MV and HV power sector in partnership with Synaptec who have developed highly sophisticated technology for use in the measurement, protection and control of plant and equipment. Using completely passive sensor technology married with traditional current and voltage transformers in a novel way allows informed visibility for effective and efficient control of a power network with time-critical protection and control, real-time monitoring and trend analysis for asset management. All of which helps minimise service interruptions extends the life of an asset and provides a higher return on investment."

## BUSINESS INVESTMENT IN UTILITIES SECTOR COLLAPSED BY MORE THAN HALF IN Q2

Business investment in the utilities sector collapsed by 56.8% annually as the coronavirus pandemic ravaged the economy, analysis of latest official data by specialist tax relief consultancy Catax shows. Total business investment in the electricity, gas and water sector fell to £1.7bn in the second quarter of 2020, down from £3.9bn in Q2 2019, latest ONS figures released yesterday show. This significantly exceeds the dramatic slowdown seen in the wider economy. Overall business investment across UK industry fell 26.1% in Q2 compared with the second quarter of 2019. UK GDP shrank 20.4% in Q2, with widespread declines across all main sectors of the economy. The picture has, however, improved more recently with the ONS reporting that GDP grew 8% in the three months to the end of August<sup>4</sup> as lockdown measures eased, raising hopes of a steep recovery in investment. Mark Tighe, CEO of tax relief consultancy Catax, comments: "This year has caught everyone off guard. The second quarter was when the pandemic really saw economies slamming on the brakes, with the national lockdown in the UK being announced on March 23, just before it began. The utilities sector has seen a much steeper decline in business investment than the economy overall, which is likely a result of the way these companies are more reliant on a complex network of physical assets. This would have left them more vulnerable to lockdown disruption than some other sectors."

## Belden joins ITxPT association

Belden Inc, a global provider of signal transmission solutions for mission-critical applications, has become a member of the Information Technology for Public Transport Association (ITxPT).

ITxPT is a non-profit association that sets out to enable an open architecture, data accessibility and interoperability between IT systems. The members of ITxPT develop the IT architecture for public transport and other mobility services together, based on standards and best practices.

With a proven portfolio of innovative solutions and services, new ITxPT member Belden is an experienced partner with in-depth expertise in designing and implementing transportation network infrastructures. As a key supplier to the mass/public transportation industry, Belden delivers a wide range of solutions that help to increase reliability, cost effectiveness and operational efficiency.

## Harwin opens £3.8m smart facility

Harwin has started production in its new manufacturing facilities at the Portsmouth headquarters in the South of England. Providing an additional 1,200m<sup>2</sup> of factory floor, the new facility is enabling the company to quickly and significantly scale up production of its award-winning high reliability (Hi-Rel) connectors to meet market requirements.

The total investment into the new facility is £3.8m; £1m of this brings in state-of-the-art equipment, with the last few machines arriving within the next 12 months. The new equipment uses advanced Industry 4.0 technology to maximise efficiency.

"Harwin leads technological progression in Hi-Rel interconnect components and the growth in customer demand means we have yet again exceeded our existing production capacity" said Paul McGuinness, Director of Operations at Harwin. "This investment has come at a crucial time, as the additional factory space and equipment enables us to ramp up production to meet high volume demands very quickly. The extra space also gives us over six month's supply of raw materials held onsite, preparing us for unforeseen supply chain challenges relating to Brexit and avoiding any order delays to our customers."

## ZF increase E-bike speed sensor portfolio

With the increasing popularity and growing trend of e-bikes, bicycle system suppliers have set goals to optimize power and performance of their drive systems. In order to support the driver in the best possible way, sensors are needed to deliver the required data and therefore adapt the engine's power support. An essential component is the ZF e-bike sensor for measuring the current speed. The ZF e-bike sensor is based on Hall technology with significant advantages over conventional reed switches.

Especially for high-quality e-bikes, all components need to be functional, from the drive to the battery and cabling. This is also the case with the ZF e-bike sensor. Speed sensors of the GS series have been specially developed for use in Pedelecs and S-Pedelecs. The extremely compact design meets the necessary requirements for the use in e-bikes. The sensors are based on the principle of Hall-effect and therefore they are non-contact and durable. In combination with ferromagnetic target wheels, a high-resolution speed measurement with over 50 pulses per revolution can be implemented without any problems.



## BES INJECTS SPECIALIST EXPERTISE INTO VMIC VACCINE FACILITY FIT-OUT



BES, the specialist in design and construction of advanced environments for the pharmaceutical and healthcare sectors, has been appointed to fit out the new Vaccines Manufacturing Innovation Centre (VMIC), which is being fast-tracked for early completion in 2021 due to COVID-19.

A not for profit organisation established to provide the UK's first strategic vaccine development and advanced manufacturing capability, VMIC has taken a leading role in advising Government teams on vaccines manufacturing in response to COVID-19. Based at Harwell Campus in Oxfordshire, the organisation's new 7,400m<sup>2</sup> specialist manufacturing centre will enable vaccine developers to refine their processes, prepare vaccines for clinical trials, and scale-up

for mass production in the event of any future public health emergencies.

This Government-funded project was already planned prior to the pandemic, with completion originally scheduled for 2022. The urgent need to produce vaccines at scale to fight future pandemics has prompted the project handover to be moved forward by 12 months.

A Government grant of £93million was awarded to VMIC in May 2020 to fast track the build and expand its manufacturing capacity. The highly specialist facility will form a key element of the Government's future pandemic response and, when completed, will be capable of producing 70 million pandemic vaccine doses in just 4-6 months.

With more than 18 years' experience of delivering complex pharmaceutical environments, BES will leverage the expertise of its multidisciplinary team to provide design coordination and internal fit-out of pre-clinical development laboratories, vaccine manufacturing suites, cold storage and filling areas.

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# Versatility at the micro-scale

A closer look at digital microscopes for electronics inspections, by Yosuke Kobayashi, Product Marketing Manager – Industrial Microscopy EMEA

Across the electronics industry there is a need for inspecting components and finished products with clear images and micrometer precision. Digital microscopes combine the versatility to tackle a wide range of specimens with guaranteed accuracy in measurement.

## THE CASE FOR DIGITAL MICROSCOPY

Digital microscopes provide flexible, easy inspections and are designed for industry. With the digital camera at the center, digital microscopes show specimens directly on a computer screen, thereby avoiding the need for eyepieces. This setup gives users a more comfortable, ergonomic experience, which is particularly important in high-throughput settings, such as quality control, where users often spend long hours working at the microscope.

Fully computer-controlled digital microscopes are fast becoming the standard in industry. Here, users can simply place a specimen on the microscope and carry out setup, imaging and analysis from their computer. Inspections that require traceable documentation and measurements with guaranteed accuracy particularly benefit from this workflow.

In electronics manufacturing, digital microscopy has long been the workhorse for inspections all along the value chain. Here, we look at examples where the latest generation of digital microscopes deliver reliability and real ease of use to the inspection workflow.

## GUARANTEED ACCURACY IN PCB INSPECTION

As the trend towards miniaturization is continuing in the design of smartphones, tablets, PCs and wearable devices, the need to mount components on printed circuit boards (PCBs) with the highest possible density is becoming ever greater. This means that slight inaccuracies in manufacturing may cause electronic devices not to work properly due to current or signal transmission failures.

In PCB manufacturing, routine, high-throughput inspection is usually automated, but digital microscopy is highly beneficial for additional, more detailed analysis. Measurements often form an integral part of the inspection workflow, and when



*The Olympus DSX1000 has the versatility to deal with a wide range of different types of specimens and flaws.*

carrying out measurements, it is not only the accuracy that counts – guaranteeing accuracy is a key parameter. Many inspection processes have audit trails where not just the measurement results have to be recorded, but also the equipment used and their specifications.

For guaranteed accuracy\* in measurements, Olympus' DSX1000 digital microscope uses a telecentric optical system. This is a feature that has been added to the microscope to correct for the convergence effect – an effect that causes the size of an object on an image to change depending on the focal plane.

When light travels from the specimen to a non-telecentric objective, the light converges onto the objective lens. This means that when the distance between the objective and the specimen changes, (for example when adjusting the focus) parallax and other distortions that affect measurement occur.

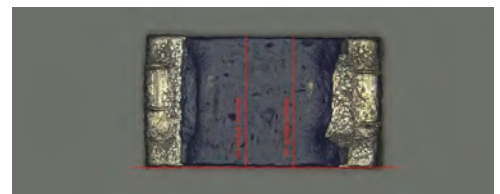
Telecentric optical systems rely on light traveling in parallel lines from the sample to the objective, avoiding size distortions and benefiting measurement accuracy. The right image shows an example of a measurement where the telecentric optical system gives precise and accurate measurements, which benefits internal auditing.

## MLCCs: BEST IMAGE, FIRST TIME

Capacitors have long been ubiquitous in many electrical devices, used for instantaneous electrical storage and discharge. Multilayer ceramic capacitors (MLCCs) have recently been attracting a lot of attention – their ability to handle larger capacities making them highly suitable to a range of fast-growing markets, such as 5G devices.

An MLCC's capacity is proportional to the surface area of its electrodes, which means they require thin electrode and dielectric layers to achieve the desired performance – typically micrometers. Efficient inspection of MLCCs relies on fast switching between magnifications and observation modes in order to get the best images and the most reliable measurements quickly.

Speeding up inspections, the DSX1000's simple slide-based objective replacement enables users to switch objectives in seconds. Magnification can be varied between 20x and 7000x for both clear overviews and intricate details. The DSX1000 also features six observation modes with an intuitive side-by-side comparison so even inexperienced users can choose the best images quickly (see bottom image).



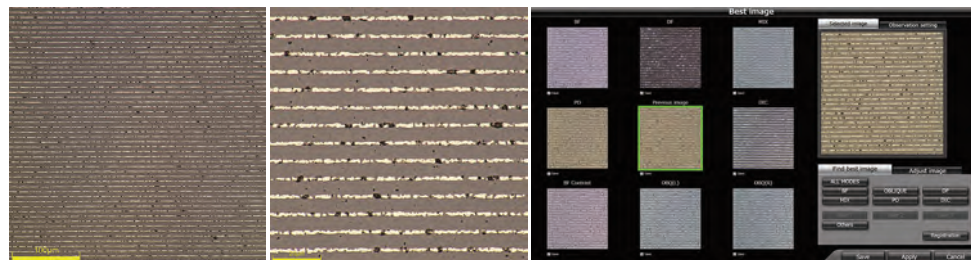
*The telecentric optical system of the DSX1000 improves measurement accuracy and repeatability by avoiding variation as a result of changing focus or magnification.*

## THE FUTURE IS DIGITAL

Electronics inspections greatly benefit from versatile equipment that requires little training to use. The examples highlighted here clearly demonstrate how modern digital microscopes stand up to these inspection challenges with features that improve detection of imperfections, measurement capabilities and user-friendliness.

The flexible DSX1000 from Olympus (top) epitomizes the benefits of digital microscopes with guaranteed measurement accuracy\* for improved compliance, 20–7000x magnification and six observation modes for high probability of detection, and easy, intuitive operation. It lifts digital microscopy towards becoming an industry standard for inspections when both precision and versatility are top priorities.

\* Guaranteed XY accuracy requires an optional calibration by an Olympus service technician.



*Both high (a) and low magnification (b) are required for thorough MLCC inspection, and fast switching between magnifications increases efficiency. Easy choosing between observation modes on the DSX1000 (c) further helps users speed up MLCC imaging.*

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## Precision from Every Angle

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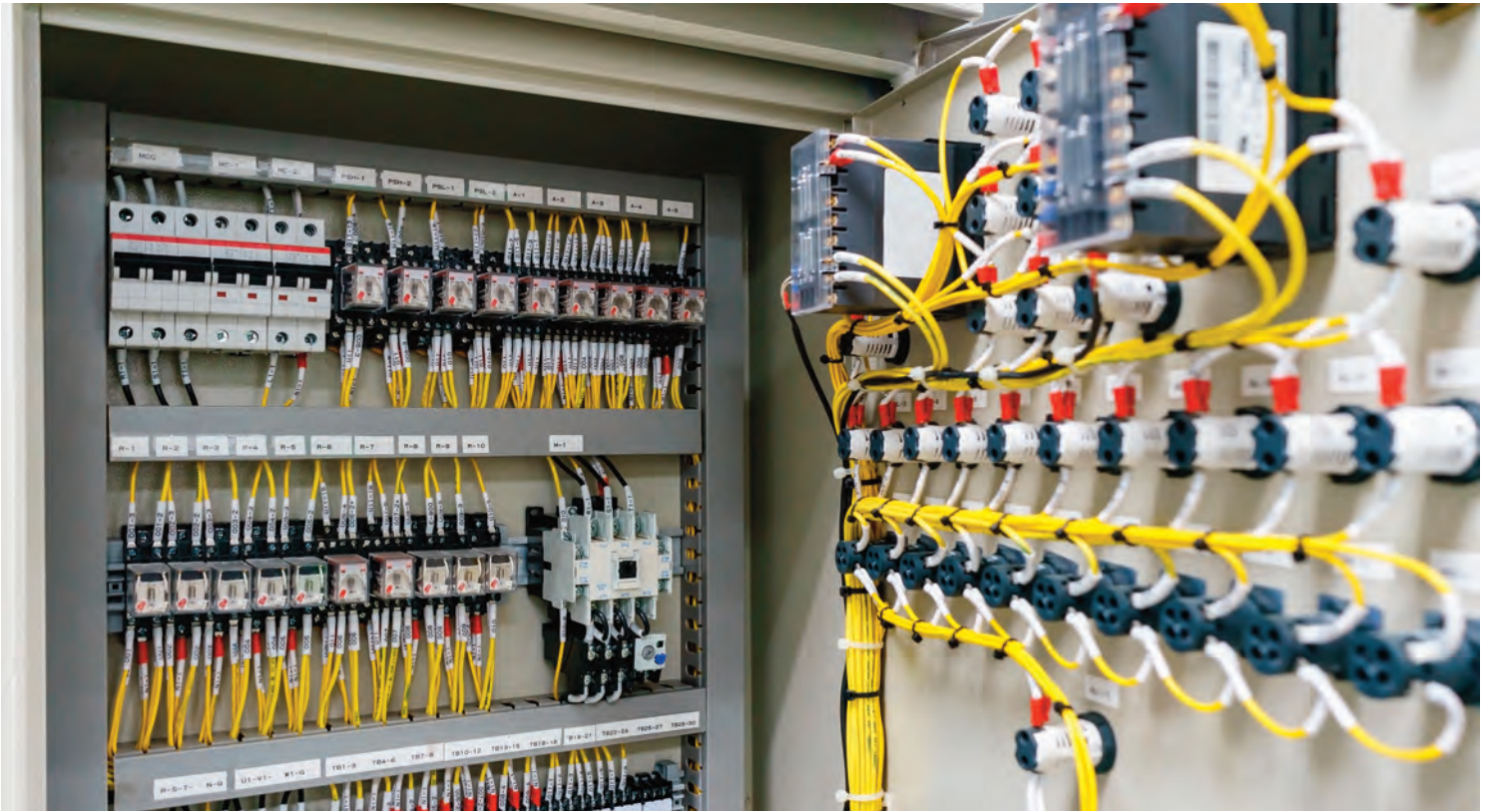
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# MORE THAN A BOX



Electrical equipment requires robust protection and a durable enclosure is vital to its safety. Here, Andrew Keith, product development director at power resistor manufacturer Cressall Resistors, explores the top considerations when designing an effective enclosure

There's a lot to be learned from the famous fable, *The Three Little Pigs*. While the tale teaches us to stay wary of menacing wolves, it also reminds us of the importance of a sturdy home. When designing a complex network of electrical components, an enclosure may be something of an afterthought. After all, it is simply a box that houses electrical components and connections, wiring, machinery controls and related equipment — all the important stuff.

However, it is this misconception that leads to failure — especially if important design considerations are forgotten or unfulfilled. Although enclosures can seem like a non-critical element in electrical system design, a failure to secure electrical equipment can result in a build up of moisture or dirt, a drastic change in temperature and poor ventilation.

## KEEP YOUR COOL

When designing a heat management system for an enclosure, manufacturers must account for external temperature fluctuations such as solar gain — heat from the sun. In addition, electrical equipment can generate significant heat as a by-product of their operation, known as losses, inside the cabinet. Failing to safely remove these losses

will increase the temperature inside the enclosure and could adversely affect its contents.

One remedy is passive cooling. This technique uses the simple principal of convection to distribute heat from a higher temperature area to a lower one. To do this, enclosures must be designed with strategically placed vents that replace hot air inside the enclosure with cooler, external air.

However, the feasibility of passive cooling depends on its environment and the ambient temperature surrounding the enclosure must remain lower than the air inside it. Additional air filters may also be required to prevent dust or dirt from infiltrating the enclosure. Instead, design engineers may want to opt for active cooling by installing heat exchangers or air conditioners to cool the air inside the enclosure.

## A MATERIAL MATTER

Of the numerous materials available for electrical enclosure construction, each offers its own protective benefits. While painted carbon steel is the most cost-effective metallic choice, it has limited resistance to solvents, alkalis and acids and is thus best suited to indoor applications.

Stainless steel provides a much higher resistance and variants such as grade 316 are

specified in industries that require resistance to chemical attack, such as pharmaceutical manufacturing, which must avoid excessive metallic contamination. As the material has better resistance against sulphates, seawater and high temperatures, we recommend this type of steel as the preferred choice for both indoor and outdoor applications.

Away from metals, fiberglass is a lighter weight choice, making it suitable for wall or pole-mounted installations. As fiberglass is not conductive, any open circuits would stay safely inside the enclosure and wouldn't be transmitted through the material. The conductivity offered by a metallic enclosure enables it to be ground connected to reduce the risk of electrical shock should an exposed conductor come into contact with the enclosure.

The considerations for enclosures extend beyond straw, sticks and bricks. However, if designers are to learn anything from the pigs, it is that we should never underestimate the value of a home's materials. Enclosures may seem like just a box, but they play a vital part in equipment protection and their design needs to be carefully considered.

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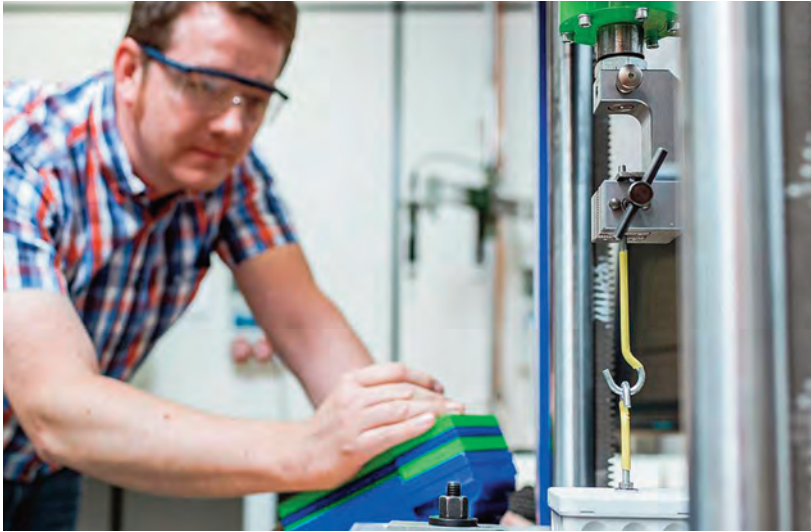
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# THE WHOLE PACKAGE

Chris Lloyd, managing director at Spelsberg UK, looks into the considerations to make when choosing an industrial enclosure

Choosing an industrial enclosure is seldom just about the enclosure itself. It has to meet the right level of quality and standards, but frequently an off-the-shelf design won't meet design needs. If customisation is required, let alone a bespoke design, choosing an enclosure is more about your choice of supplier.

An industrial enclosure must be sufficiently constructed to protect whatever's inside it – and if that means electrical distribution, the enclosure has also got to provide safety to people coming into contact with it. To achieve this, the enclosure should fit your design and installation environment to ensure safe and functional performance, which can mean customisation or even bespoke design. If any stage of customisation isn't executed to the required standard, at best this can impact the installation deadline; worse still, it can lead to field failure. For these reasons, when it comes to choice of industrial enclosure, you're never just buying a box: it's crucial to pay close attention to your design and how it's going to be executed.

Starting with the enclosure itself, it's got to suit the application setting, whether that's cast-in-place concrete for a hotel construction, an outdoor railway terminal or the ceiling alcove of an office. Considerations on protection against the elements such as water and particulates (IP rating), UV rays and impact resistance (IK rating) are essential. The enclosure should also enable rapid, simple component installation, which means flexibility over positioning of fixtures and cable routing, also allowing for easier access during field maintenance.

Spelsberg UK holds the largest ex-stock supply of non-metallic enclosures in the UK, with over 4,000 standard enclosure designs to choose from, yet requests for customisation are commonplace. Computerised numerical control (CNC) capability from Spelsberg's Telford facility takes care of straightforward requests to cut holes for cable glands, through to complex requirements which could include machining of intricate vent holes or

accommodation of specialised equipment, such as scanners or cameras. Milling, drilling and thread tapping are regular aspects of customisation, and ultrasonic welding can also be used, for example to attach new fastening points for electrical assembly.

Cutting multiple radii, precise angles or dimensions means that if exacting requirements aren't met, the enclosure could be damaged or component fit could be compromised. This could impact IP rating or affect the enclosure's ability to fulfil its designated task. Keeping CNC machining as the responsibility of your enclosure provider is therefore a sensible approach.

Customisation usually involves scanning a detailed customer drawing, which can be read directly by the CNC machine. The ability to directly scan CAD drawings enables the creation of intricate designs which previously would have been extremely time consuming, if not impossible to achieve. If a customer isn't able to provide a CAD drawing for their customised specification, Spelsberg can create them. This level of service demands not only the expertise in CAD, but also the flexibility of the enclosure supplier to accommodate the design from the bottom up. The benefit to the customer is time saving; it means that they don't need to invest in in-house CAD capabilities and that they can receive expert assistance.

Where customisation of an existing enclosure design doesn't fulfil the specification, completely bespoke designs can be created. With bespoke projects it's crucial that the manufacturer can work with your needs to advise on what's achievable in practical terms. Spelsberg can create a prototype within a week and this process is invaluable to the customer to qualify how the design can be achieved before launching full-scale production, removing the risk and demonstrating viability in real-life form. This process also includes testing to ensure aspects such as IP rating and UL are met with the bespoke design.

Personalisation of an enclosure also includes

printing. This can range from a company's name and contact details through to instructions, and Spelsberg can print any text or image directly onto enclosure lids or sidewalls. Where longevity is important, such as is the case with written safety instructions, engraving is an option to secure permanent text. Special enclosure coatings can also be applied, for example military or heavy-duty requirements, and virtually any colour of enclosure can be moulded. Concerning material choice, polycarbonate is frequently selected for its highly robust qualities, as well as ABS thermoplastic, to variants with properties for fire-resistant applications, such as Spelsberg's WKE Lifeline enclosures which can maintain integrity in a fire for up to 90 minutes.

If a supplier can also assemble your enclosure with your components, this can save significant time and resources. Spelsberg can assemble an entire unit, which could range from a standard distribution board to a keypad and wiring loom. During the ongoing Covid-19 pandemic, this capability has provided a significant advantage to customers with reduced staff levels. Special packing requirements can also be fulfilled, using specific containers or packaging depending on delivery requirements. A recent project for electric car charging points required special packaging to ensure secure handling and shipment of the enclosures, as well as appropriate branding.

Customisation, from CNC machining to assembly, can alternatively be provided by a third-party. The main challenge though involves expertise and accountability, at outset for delivery and installation, but also to ensure trouble-free use in the field. Instead, the benefit of working with a single supplier means accountability for a smooth product development process. Crucially, it also means confidence over the lifetime of a product, which could be installed for 20-years plus.

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# A SUPPORTING ROLE

Machine enclosures are never one-size-fits-all solutions; they are as distinctive as the equipment they protect. In fact, they are often custom-designed and made-to-measure - a time-intensive and expensive option.

However, there is an alternative, as illustrated by PVA TePla, a vacuum specialist company for high-temperature and plasma process technology. It employs standardised housing to protect its systems and not just for reasons of efficiency.

Let's be honest, enclosures are not generally front and centre in people's minds.

They are typically in the background, placed behind production machines or on remote steel platforms in factory buildings. Even the largest enclosures are not usually offered star billing; they are workhorses, providing basic support services. They need to perform, but not grab the limelight. Nothing more is expected of them. Their mission is to ensure reliable control and switching functions for industrial plant and machinery. They protect people and technology, create an ideal environment for electrical and electronic components, and help deliver stable manufacturing processes.

In the engineering industry, however, enclosures have a more prominent, high-profile role to play. They appear not just behind machines, but alongside them - or even as an integral part of them - and they play a rather different role. With the help

of control displays on doors and side panels, or by means of connected control and support arm systems, they act as assistants to the (human) machine operator. That is certainly the case for PVA TePla, a maker of specialist machinery.

At the company's large and light-filled factory in Wetzlar near the city of Giessen, its enclosures almost overshadow the equipment they serve. They are positioned at the very front and dominate the overall appearance of the machines.

The vacuum technology specialist has employed Rittal enclosures for many years (including as a way of fully encapsulating its MOV 743 heat-treatment furnace) and since 2019 it has deployed the new VX25 system portfolio.

"The Rittal enclosure system allows us to build manufacturing equipment that boasts an attractive product design; it does not have the appearance of industry or mass production. They are products that would not look out of place in your living room," explains Martin Kaiser, managing director of PVA Control.

"The idea to employ enclosures to house our equipment came to us when we discovered, by accident, that a long-established customer had asked a metal-working expert to create a 'package' for our machines that would make them suitable for presentation in a showroom," states Kaiser.

For Kaiser, this was an opportunity to develop an entirely new housing concept.

The proposal was to take the design of an enclosure that had always been an integral part of the plant and apply it to the entire plant and all its housing.

"We were and remain convinced that housing a machine with a series of adjacent enclosures creates a highly attractive, consistent look-and-feel that also aligns visually with other switchgear units," emphasises Kaiser.

He adds, "We simply tried it out and were pleasantly surprised in two ways: first, because it worked very well from a technical perspective, and second, because the enclosure-based approach was about half the cost of purchasing a custom-built housing from an external specialist."

Faster assembly and installation translate directly into cost savings for the company. "We generally have the housing complete in two days," reports Kaiser. For PVA Control, conventional housing solutions are usually custom-built by an external specialist, a slow and expensive process. It includes the positioning of posts, the attachment of panels chosen in line with the specific use case, and the application of a powder coating.

The company can now reap the rewards of its new modular enclosure system, which not only improves the installation speed, it also delivers greater flexibility.

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# COMPACT, ROBUST AND HAND HELD CASE MODELS



The BC range of hand held boxes from BCL Enclosures, the specialist UK manufacturer of standard and custom plastic enclosures, includes a number of different models suitable for a wide range of applications - these protective cases can be used for measuring instruments, wireless communication devices, control and data recording devices and many more.

The hand held case with battery compartment and belt/pocket clip option, Model BC2, has an integral PP3 battery compartment with a removable cover and clip-in terminals supplied as standard. Four internal location pegs and sockets hold a PCB securely in place without the need for further fixings. The case is held together by two self-tapping screws concealed by the battery cover for a neat finish. The pocket/belt clip is supplied with each case and can easily be fixed to it with two supplied screws. Manufactured from ABS, standard colours are matt black, white or light grey,

with other RAL colours available on request. The front of the case has feature panels which provide an excellent surface for customization such as company logos. The case measures 103mm high by 62mm wide by 23mm deep. Nominal wall thickness is 1.5mm.

A hand held case model, BC3, has a battery compartment and separate front cover with an integral PP3 battery compartment accessible by a separate removable cover. Again, the two main halves of the case are held together by two supplied self-tapping screws concealed by the battery cover. The integral bezel and front cover can be removed for ease of manufacture. In moulded ABS, colours are high-impact matt black, white or grey with a polished front panel. BC3 measures 118mm high by 66mm wide by 33mm deep. Nominal wall thickness is 2.0mm.

Model BC5 hand held case offers a recessed front panel, battery compartment and a belt/pocket clip option. The recessed front panel is suitable for a

membrane-type keypad. The integral battery compartment is accessed by a separate removable cover and the two halves of the case held together with two concealed screws (supplied). There is also a handy optional pocket/belt clip supplied with the case that can be fixed in place with two screws. (The pocket clip BPC5 is also available separately). BC5 measures 92mm high by 63mm wide by 24mm deep. Nominal wall thickness is 2.5mm. BC5 is available in matt finish black only as standard, although RAL colours are available on request for both BC5 and BC3.

The final model in BCL's range of hand held cases is an instrument or calculator case with a battery compartment, moulded from matt black or white ABS. The BC4 case has an integral battery compartment, with a sliding cover that will take two PP3 type batteries. Internal PCB pillars are provided in both halves of the case, which are securely held together with four supplied self-tapping screws. At the window end of the case there is a removable panel for leads or a window for infra-red remote control applications. Measurements are 154mm high by 81mm wide by 37.5mm deep at the upper end, tapering to 33mm deep at the lower edge. Nominal wall thickness is 2.0mm. The display window is 49mm x 20mm.

BCL Enclosures' products are manufactured in the UK, which overcomes the supply issues often found with non-UK manufactured items. Products are available from stock or on very short lead times. In addition to the above hand held range, BCL Enclosures offers a very comprehensive range of plastic enclosures and power supply units. Advice on enclosure specification and a full gamut of custom and customisation services are also available.

**BCL ENCLOSURES**  
[bclenclosures.com](http://bclenclosures.com)

# Hammond IP66 stainless steel industrial enclosures

The IP66 EJSS family from Hammond Electronics is available in 304 or 316 grade stainless steel, supplied as standard in a natural smooth brushed finish. Sealed to IP66, the EJSS is designed for use as an instrument enclosure, an electric, hydraulic or pneumatic control housing, electrical junction box or terminal wiring enclosure. In applications such as food processing, a formed lip on the enclosure diverts flowing liquids and contaminants away from the seamless poured-in place gasket in the door, enabling it to be hosed down during cleaning. Stainless steel is also an excellent material for installation in areas where corrosion may be a problem. The EJSS family is available in 22 sizes, ranging from 102 x 102 x 76mm to 406 x 356 x



254mm. All but the two smallest sizes are supplied complete with a 1.6mm thick internal unpainted galvanised steel panel. The EJSS meets IEC 60529

IP66 for European and CE, UL and NEMA 3R, 4, 4X, 12, and 13 requirements for North American markets. The body and cover are formed from 1.3mm stainless steel with smooth, continuously welded seams without knock outs, cut outs, or holes. Integral heavy duty full width top and bottom brackets facilitate mounting the enclosure to an external surface. The cover, mounted on a heavy duty continuous hinge, opens through 180° for good access; a quarter turn latch prevents casual unauthorised access by requiring a tool for operation. A bonding stud is provided on the door and a grounding stud is fitted to the enclosure.

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# WHY ARC FLASH FACE AND HEAD PROTECTION IS NECESSARY AND VITAL



**P**PE can be the difference between a fatality and staying safe in hazardous workplaces. The electrical, construction and mechanical industries are particularly dangerous, with many hazards present and a life changing injury could quickly end the ability to perform the tasks correctly. Electrical hazard environments require arc flash face and head personal protective equipment (PPE) to protect workers from environmental hazards, particularly in the instance of an arc flash occurring. Here we will discuss why this protection is necessary in certain environments.

## WHY WEAR A FACE SHIELD AND HEAD PROTECTION?

Most tasks undertaken by the engineers working in an area with an arc flash risk will normally involve the head being near the workspace where the arc flash could occur. The face and hands will typically receive the full force of the arc flash with the shortest range, so the risk of damage is obviously far higher. Arc flash face shields and balaclavas are therefore essential to provide protection of the face and skull from the blast, molten copper spatter and radiation that could be up to three times the temperature on the surface of the sun. Arc rated gloves are another important part of the protection package – in both cases of injury the victim may well survive but will suffer the effects of being irreversibly physically damaged that will sadly make massive changes to their remaining lives.

## DIFFERENT TYPES OF ARC FLASH FACE AND HEAD PROTECTION

A large amount of electrical working environments requires arc flash protection, with several PPE options available such as arc flash clothing from Reece Safety to protect you in an arc flash environment, from switching suits to face shields. All of them will be selected based on the rating needed to address the identified incident energy calculated during the arc flash survey. All PPE is classed as the last line of resistance and other fundamental steps will be taken to eliminate this risk beforehand.

## ARC RATED HOODS

Arc rated hoods can be worn to protect the full head and will protect the face, head, chin and extending down to the neck that will protect from molten metal splatter, high speed debris, flames and radiation. Arc rated hoods can start with an arc rating of 14 cal/cm<sup>2</sup> and the major benefit is that the user does not need to wear a balaclava, as the hood covers all the exposed areas with full protection.

## ARC FLASH SWITCHING SUITS

Switching suits are a complete kit that provide an arc flash hood, jacket, dungarees, and gloves. Suits are often available with different arc flash ratings to

suit each environment and the hazards that may occur, so it is vital to find the correct rating that you will need in your workplace. Most switching suits are used in PPE arc category 4 areas where a protection greater than 40cal/cm<sup>2</sup> is required. They will often be stored in the substation where they need to be used – making sure that the extra PPE is available every time it is required.

## ARC RATED FACE SHIELDS

Face shields should be worn as protection against hazards arising from an arc flash: molten metal splatter, high speed debris, IR and UV radiation and sonic boom from the explosion to name a few. A common oversight is for the user to wear an arc rated balaclava under the helmet. It is essential in protecting the neck but also the back of the skull where the radiation will engulf the victim and caused major injuries at this unprotected spot. When wearing a balaclava, the front should be pulled up over the mouth to provide additional protection for the face. An electrically rated non-vented helmet completes the protection.

In conclusion, facial and head protection is vital when working with electrical hazards, particularly when arc flashes may occur, so investing in the correct arc flash PPE is essential for everyday use in such a hazardous industry.

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# Construction workers want PPE and will refuse to return to work without

85% of UK construction and engineering workers say it's employers' responsibility to make sure employees have the right protective workwear; 46% would refuse to go to work without the right PPE; 83% want employers to give clear advice on PPE

The vast majority of workers in the construction and engineering industry believe that it is their employer's responsibility to ensure they have the right protective equipment in the workplace - with a significant number stating they would refuse to go to work without the right PPE, according to a survey by Populus Data Solutions.

The survey, carried out for industrial workwear and protective clothing specialists Ballyclare, also found that a large proportion of construction and engineering workers are still seeking clarity on PPE from their employers and the Government. The results come as Ballyclare publishes a new factsheet, clearly spelling out to employers and employees which PPE should be worn across various workplace settings and how it can be worn most safely.

As the economy slowly reopens, worker safety is a key focus for both employers and employees. When asked who should be responsible for ensuring workers have the right equipment to work safely, 85% of respondents in the construction and engineering sector said it is the employer's role, while 27% also said the Government should shoulder the responsibility. These answers reflect



sentiment from other sectors, which showed that 87% felt it was the employer's role, and 40% believed it was the Government's role.

In a stark illustration of the issues facing businesses coming out of lockdown, the survey found that if an employer did not provide the employee with personal protective equipment, almost a half of respondents in the construction and engineering sector said that they were very likely or likely to refuse to go into work (46%), compared to 24% who said they would still attend.

The survey results showed that a significant majority of workers in the construction and engineering sector want clarity on what protective equipment they should wear. 71% said they would feel safer in returning to work if their employers

provide the right PPE - with 83% saying they wanted clear advice from their employer. At the same time, 63% said they also wanted clear advice from the Government.

As lockdown measures are relaxed and people consider their back-to-work options, the analysis shows that if people were able to go into work tomorrow, a significant portion of the construction and engineering industry would not feel comfortable (35%) compared with those who said they would (34%). 7% said that they are back at work and do not feel comfortable.

Silke Hendricks, managing director of Ballyclare, says: "If people continue to feel insecure about returning to work, we could see a huge impact on the UK's efforts to reopen the economy. The more employers can do to communicate the steps they are taking to make the workplace safe, the better. We have created a factsheet, based on our years of experience of working with PPE, to provide some practical advice as companies look to do everything they can to reopen their workplace in as safe a manner as possible."

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# Chalmit launches transportable light for hazardous industries

Chalmit, a division of the Hubbell Harsh & Hazardous Group, has launched its new Luna LED Temporary Floodlight.

The durable, lightweight and highly powerful floodlight utilises cutting-edge technology in what is a major innovation in transportable lighting for hazardous areas.

The light directs a targeted 5,600lm output and consists of a robust, maintenance-friendly design. It also weighs just 9kg, meaning it is easily moved.

Ken Eddleston, Senior Lighting Product Specialist at Chalmit, explains: "We wanted to bring a durable and powerful luminaire to the marketplace for hazardous industries, and have achieved this with the Luna LED Floodlight. It's IP66 and IP67 rated, meaning it's dust-tight and protected against powerful jets of water and immersion. It's ATEX and IECEx certified for use in Zones 1, 2, 21 and 22, making it fit for purpose in fuel tanks, oil refineries, chemical plants, and offshore platforms, as well as many



other hazardous settings."

The marine-grade aluminium construction of the light, tested to an impact protection of IK10, makes it immensely robust. It operates with 150,000 maintenance-free hours and functions at extreme temperatures, from -20oC to +59.5oC. The light is also dustproof, waterproof, and has

low power consumption.

A variety of cable lengths and plugs are available for purchase with the light, to facilitate movement and to cater for a range of voltages. It's supplied with a 50o beam angle to enable targeted wide-area illumination, plus, multiple lights can be linked together to illuminate even larger areas.

Ken concludes: "The Luna will keep you shining when you need it most, keeping workers in hazardous environments safe and enabling all to work with precision and accuracy."

The Luna LED Temporary Floodlight is available with 24 or 48 LEDs, depending on the requirements. The 48 LED variant has independent LED engines for ultimate reliability onsite – if one LED board goes down, the other will continue to illuminate the area.

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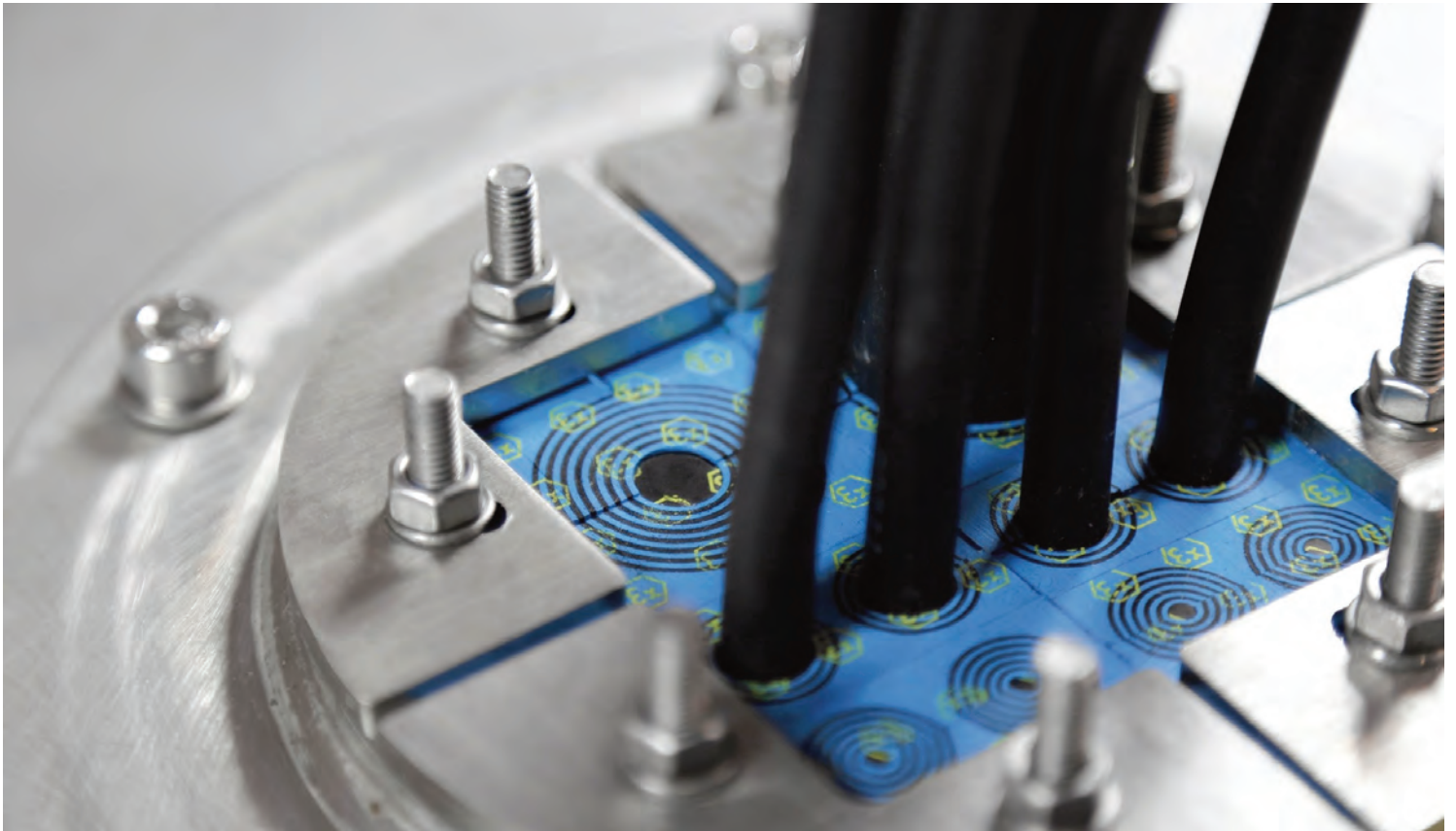
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# HAZARDOUS AREAS SEALED FOR SAFETY

International safety seal manufacturer Roxtec has supported pharmaceutical group Guerbet with an upgrade project at its Irish manufacturing site

**G**uerbet specialises in diagnostic and interventional medical imaging. It operates nine manufacturing sites around the world, including one at the Damastown Industrial Estate north of Dublin that makes active pharmaceutical ingredients for the firm's MRI, X-Ray and interventional imaging products range.

Ronan Mills, Roxtec market manager for Ireland, says, "Roxtec was brought in to supply Guerbet with a range of specialist pipe and cable safety

seals. Part of the project involved extending the County Dublin facility's Ex-classified manufacturing areas. These areas contain an explosion hazard, requiring airtight seals that protect against the risk of explosion to be fitted at all pipe and cable entry points."

Mills says: "We've worked with Guerbet on a regular basis, helping to support facility upgrades in hazardous areas. Our Ex cable transit devices are designed specifically for environments where it's necessary to guard against the risk of explosion.

"We supplied Guerbet with transits offering Ex e protection, which provides increased safety for explosive gas atmospheres. These products have helped to create a safe work environment for the company's employees by forming an airtight seal and isolating rooms with potentially hazardous gases. They also play a crucial role in protecting valuable equipment."

All Roxtec's Ex sealing solutions are certified according to the ATEX directive and the IECEx International Certification Scheme.

Various pipe and cable sealing solutions were installed during the project, including Roxtec G Ex transits with sealing modules, RS seals and R Ex transits. As well as preventing ignition of explosive atmospheres, Roxtec's Ex products are

also fire rated and watertight. The Ex range includes a wide variety of seals designed to handle different cable sizes and openings, making them incredibly flexible and suitable for countless scenarios.

Mills adds: "We created numerous drawings to support the Dublin upgrade project and have previously provided training to Guerbet's installation teams. The firm typically requires seals to have 15 per cent spare capacity so future upgrades are quick and straightforward. The flexible design of Roxtec's transits ensured this was easily achieved."

Sealing solutions manufactured by Swedish-owned Roxtec are widely used within manufacturing to protect people and assets from multiple hazards including fire, flooding, the risk of explosion and electromagnetic disturbance. Renowned for their durability, reliability and flexibility, the firm's products are found on land, at sea and underground. Other key markets include the power, infrastructure and process industries, as well as the marine and offshore sectors.

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# NO MORE DAILY MAINTENANCE

New technology developed by safety company Pyroban has put a stop to the daily maintenance of ATEX diesel engines powering temporary well service, production and pumping equipment.

"With new technology, cleaning exhaust flame arrestors every eight hours is a thing of the past," says Rob Double, sales director for Pyroban. "This applies to new equipment and almost all existing Pyroban protected engines already in the field, once they are fitted with a simple replacement part."

Exhaust flame arrestors are a critical part of an explosion proof system found on engines used in Zone 2 hazardous areas offshore. They allow the engine exhaust gases to pass through and will stop a flame in the event of hydrocarbon gas ingestion, but in certain operating conditions they can clog up with soot very quickly.

Pyroban has developed two different solutions to eliminate the plate type exhaust flame arrestor from the explosion proof diesel engine design.

In April 2020, Pyroban launched Ever Clear Exhaust (ECE) Flame Arrestors which are a direct replacement for plate type flame arrestors. These are bolted into the exhaust system between the turbo and gas cooler, on the hot side of the exhaust flow. They are low in cost and can easily be retro fitted in the field to existing equipment. Pyroban has options for most turbo diesel engines above 100bhp.

As a more advanced alternative, Pyroban's Ex SCS was launched in 2018 to combine flame arrestor elimination, safety shutdown and diesel

engine control and monitoring in one flexible package. The system brings an active approach to the overall safety system by introducing gas detection into the engine inlet tract at a certified position and also within the equipment DNV 2.7-1 enclosure.

"Ex SCS quickly and reliably triggers a safety shutdown on detection of a flammable gas in the engine air inlet, diesel engine over speed, high exhaust gas and coolant temperatures, low oil pressure or if there is a manual emergency stop activation for example," says Rob, explaining that the control system is Category 2G certified for Zone 1 use, ATEX and IECex, and is also SIL 2 rated to EN61511.

Ex SCS is a 100 per cent stand-alone safety control system for ATEX 2014/34/EU compliance. A 7inch colour touchscreen HMI (Human Machine Interface) displays the current safety status and the diesel engine control and monitoring screens can also be integrated. This makes it easy to incorporate additional driven equipment controls such as pumps, generators, transmissions, or the well head platform's DCS (distributed control system).

"Whichever solution is chosen, operators are no longer exposed to sources of ignition if a 'dummy



arrestor' is used," Rob says. "Manual handling compliance issues also disappear because we have taken away the need to change and clean the heavy flame arrestors which are typically located above waist height."

Following extensive field trials and testing, and the completion of the EN1834-1:2000 non-flame transmission tests, both solutions are available to order now for Pyroban kits and HazPaks all over the world. "Operators can now get on with the job, enjoy longer operation and reduce unproductive downtime," he adds.

**PYROBAN**  
pyroban.com

# SHINING A LIGHT ON THE IMPORTANCE OF FUNCTIONAL SAFETY

Diamond Light Source, the UK's national synchrotron science facility located in Oxfordshire, has appointed Inspec Solutions, an independent control, safety and automation systems supplier to the UK's energy, metals, chemicals, oil and gas and manufacturing industries, to provide Functional Safety Services across its operations.

Inspec Solutions was approached by the organisation to help meet its demanding proof test schedule as Diamond recognised the importance of effective high integrity automatic safety systems to protect hazardous processes.

Because of its expertise in delivering customer-critical infrastructure, Inspec Solutions will be able to deploy a team and begin testing, which would allow Diamond staff to focus on their core working duties.

Mark Ritson, managing director of Inspec Solutions, explains: "We are really excited to be working with Diamond Light Source on this important project. Diamond should save a significant amount of time by outsourcing this service. They will benefit from our ability to operate as a highly qualified independent company to verify the integrity of their safety system. By having



certified Functional Safety Engineers in the team, we will provide a fresh, thorough, and ongoing review of the existing proof test procedures, highlighting opportunities for improvements."

Diamond is one of the most advanced scientific facilities in the world and its pioneering capabilities are helping to keep the UK at the forefront of scientific research. Its technology accelerates electrons to near light speeds so that they give off light 10 billion times brighter than the sun. This allows scientists to use the light to study a vast range of subject matter, from new medicines and

treatments for disease to innovative engineering and cutting-edge technology.

The Inspec Solutions team supporting Diamond includes certified TÜV Functional Safety Engineers, as well as highly experienced offshore technicians with backgrounds in supporting critical infrastructure in the UK North Sea.

Inspec Solutions has over 15 years of Functional Safety experience in many different industries, focusing on both continuous process and machinery installations.

This experience means the company can carry out proof testing on safety critical systems to a very high standard and to work with clients to improve their own procedures. Including a certified Functional Safety Engineer in the team provided a fresh and thorough review over the existing proof test procedures, highlighting opportunities for improvements.

The company provides high integrity, SIL rated systems and offers every stage of the safety lifecycle from Risk Assessment / HAZOP / LOPA, SRS, through design, installation, validation or and SIF proof testing services.

**DIAMOND LIGHT SOURCE**  
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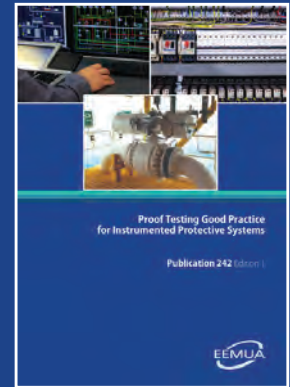
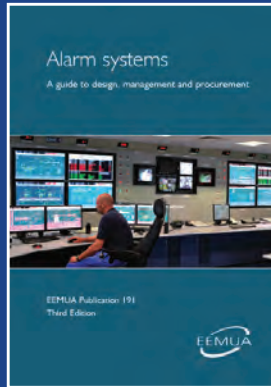
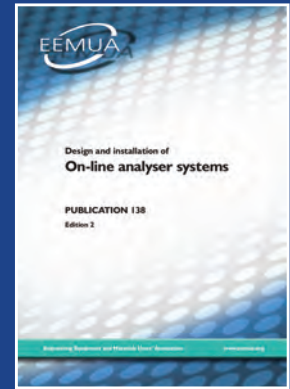
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# KUP AND THE BBC

How KUP supported the BBC's need for a comprehensive battery upgrade and helped safeguard its power protection infrastructure for the future



The BBC represents one of a handful of UK institutions that we interact with almost every day. Whether it's listening to the news on Radio 4, watching Match of the Day on TV or catching up on EastEnders via the iPlayer, the BBC is available 24/7/365. Maintaining 100% uptime requires comprehensive UPS systems – with large banks of batteries connected to standby generators – to ensure that a loss of mains power doesn't impact its ability to provide content around the world.

Maintaining this level of protection requires regular maintenance and periodic upgrades to replace elements of the UPS system that have a finite life. A UPS system's batteries, which manage the supply to the critical load and the transition from the mains to the standby generators, last on average seven to eight years, with their lifespan impacted by a number of factors, such as ambient temperature and the number of discharges.

It was with this in mind that the BBC's facilities management partner, Interserve, approached KUP, with a requirement to replace the 5,000+ VRLA batteries that support 14 separate UPS systems across three buildings within the BBC's MediaCityUK campus in Salford Quays.

Between them, the three buildings (Bridge House, Dock House and Quay House) are home to 2,700 BBC staff. The entire centre is one of the largest HDTV programme-making facilities in Europe and is the home of BBC Children's (CBeebies and CBBC) and BBC Sport, BBC Radio 5 Live and 6Music, as well as BBC Radio Manchester

and the BBC Philharmonic Orchestra.

KUP has a well-established relationship with the BBC and Interserve, already working together to provide and maintain UPS related products and services to seven BBC sites, making it a natural choice for this project. However, in line with the BBC's procurement policies, three organisations were approached and asked to provide written quotes. KUP was selected as the successful supplier and the contract was awarded in July 2019. As well as its experience in managing projects of this type, the contract was awarded to KUP based on its considered recommendation, which identified the best solution for the BBC's requirements, not simply replicating what was previously installed.

Stuart Insch, Projects Engineering Manager for KUP, commented on the contract says, "Having worked with the BBC and Interserve for many years, we were delighted to again come out on top and win this important contract. KUP is known for the strength of its service network and ability to manage projects of this size, and our experience was key to ensuring the entire project was managed safely, in a timely manner and without ever exposing the critical load. Once the specification for the batteries, their configuration and supporting infrastructure was agreed, the batteries were ordered from the manufacturer, Yuasa and installation began in mid-September. The project was completed just six weeks later – on time, on budget and without issue.

He continues: "That said, the project was not

without its own unique challenges. Chief among these was the site security, with an essential requirement to coordinate our own staff and third parties in order to secure access to the site. We were provided with specific time slots for deliveries and each delivery had to be registered against a specific vehicle. It was nothing we couldn't handle through good communication and careful planning. Everyone from the client's side was delighted with the outcome and we are now preparing to complete the next phase in the project, installing power loggers to each of the battery systems to record battery temperatures at regular intervals to help maximise the lifespan of the system."

A key benefit of regular UPS battery maintenance is the early detection of weak battery blocks. As they are such a critical part of a power protection system, replacement of weak battery blocks should, therefore, take place before they fail. If a UPS battery replacement is not purchased, a weak or faulty battery will compromise the integrity of the whole power protection system. KUP supply and fit replacement batteries, of all types, into all models of UPS and secure power systems.

Additionally, KUP offers a UPS battery replacement programme for a wide range of battery supported UPS products. KUP can supply a suitable UPS battery replacement compatible with your AC UPS, DC equipment, emergency lighting and generator starting batteries.

**KUP**  
[kohler-ups.co.uk](http://kohler-ups.co.uk)

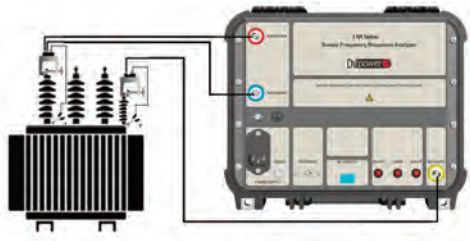
# Sweep Frequency Response Analyzer FRA500

FRA500 can confirm the mechanical integrity of the transformer by comparing the frequency response of the transformer with the previously known results. Every transformer has a unique frequency response

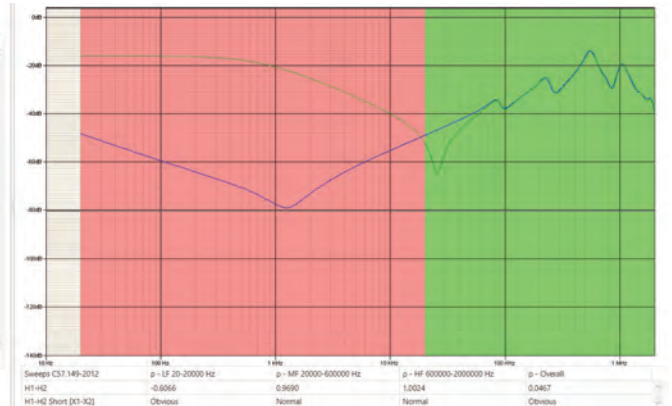
system which changes if the mechanical geometry of the transformer is changed. These changes can occur due to physical movement of the active parts (caused by transportation, earthquakes), or mechanical impacts due to short-circuit forces after a failure.

FRA500 can be used to detect problems such as:

- Core movements
- Shorted turns or open windings
- Winding displacements or deformations
- Winding connection problems
- Broken clamping structures
- Faulty core grounds



Connecting FRA500 to transformer (IEC 60076-18)



FRA500 injects a sine wave signal with constant amplitude and variable frequency to one side of a transformer winding. The amplitude and phase angle values of the reference (output) signal are then compared with the corresponding values of the measured signal (from the second side of the winding). The ratio of the measured signal and reference signal magnitude is graphically displayed in dB through the full sweep frequency.

## TEST RESULTS INTERPRETATION FEATURE

DV-FRA software provides an analytical tool that can perform correlation between two traces per the IEEE C57.149-2012, or DL/T 911-2004 standards.

## DYNAMIC RANGES

The FRA500 offers a dynamic range greater than 150 dB with a measurement accuracy of  $\pm 0.1$  dB from +10 to -40 dB and  $\pm 0.5$  down to -100 dB. The higher dynamic range eliminates the effects of noise and facilitates the comparison of different sweeps.

## SELF-CHECK TEST

As included accessories, there is always verification box intended for the self-check of the unit.

Carl Baldwin - General Sales Manager  
 cbaldwin@drallim.com | Tel: +44 (0)1424 205140  
 Web: www.drallim.com

# Sweep Frequency Response Analyzer FRA500



- Sweep frequency range: 0.1 Hz - 25 MHz (selectable)
- Dynamic range: >150 dB
- Computer interface: USB and Bluetooth
- Battery backup (optional): 4 hours of operation
- Typical sweep time less than 20 s (20 Hz - 2 MHz)
- Superior frequency response in noisy environment
- Sample points per sweep: 2 000 points per decade, 32 000 points total
- Correlation calculation per C57.159-2012 and DL/T 911-2004 standards
- Enabled test result comparison due to possibility of importing data from other manufacturers
- PC based analysis software with user-friendly interface with pre-defined test plans and reporting feature



**3-year warranty** included with the product.  
**1-year extension option** available upon the product registration.

For more information please contact: **Carl Baldwin** - General Sales Manager  
**cbaldwin@drallim.com** | Tel: **+44 (0)1424 205140** | Web: **www.drallim.com**



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 in the UK and ROI

# 12 SPEAKERS NOT TO MISS AT LuxLive 2020

THE LINE-UP of speakers has been named for next month's LuxLive 2020 Digital Festival and includes world class designers Mark Major, Dean Skira and Robyn Goldstein, scientists Christopher Cuttle and Stephen Lockley, and tech innovators Sami Salomaa and Szymon Slupik

LuxLive – which takes place on Wednesday 11 November and Thursday 12 November 2020 – will have a central theme of Health and Wellbeing and is divided into four main strands: Emergency Lighting, Smart Lighting, Workplace and Lightspace, focusing on lighting in architecture.

Each strand will take centre stage at certain times throughout the festival and will deliver compelling content. Here's our top 10 speakers not to miss:



## 1. MARK MAJOR

Mark Major, co-founder and director of London-based lighting design practice Speirs + Major will explore his relighting of the 900-year-old Norwich Cathedral at 1.20pm on Thursday 12 November.



## 2. DEAN SKIRA

Dean Skira, director of Skira Architectural Lighting, will present a session called 'The simple Trick that created a dramatic office exterior' and in it he will look at the clever use of an exterior 'blade' fitting to create a dramatic and dynamic lighting installation at a prominent office development in Zagreb. The design used IP-rated fittings with 360 degree blade optics – the iGuzzini Trick luminaires – to illuminate the brise soleil, which in turn acts as a secondary reflector. The talk takes place on Thursday 12 November at 2pm.



## 3. ROBYN GOLDSTEIN

Robyn Goldstein of HLB Lighting Design will walk us through the lighting at the global headquarters of cybersecurity firm Akamai Technologies in Massachusetts at 11.40am on Thursday 12 November. Drawing inspiration from the idea of network connectivity, the Akamai HQ features a concept that begins in the lobby, with lines of light guiding people throughout the 19-story building along a continuous mile-long path, known as the 'AkaMile'. This high-concept design is both visually stunning and energy efficient, designed to both LEED v4 and WELL v2 Gold certification levels.



## 4. CHRISTOPHER CUTTLE

Christopher 'Kit' Cuttle, the well-known lighting scientist/ educator, will argue that it's time to replace the lumen in his presentation at 12.40pm on Thursday 12 November. The lumen, a measure of lighting since the 1920s, is outdated and needs to be replaced – but with what? Cuttle will explain why the notion of a fundamental unit of light is no longer tenable and how it could be revised.



## 5&6. STEVEN LOCKLEY AND SAMI SALOMAA



Steven Lockley, associate professor of medicine in the sleep medicine department at Harvard Medical School will discuss 'why circadian lighting is important' with Sami Salomaa, the founder of Nordic lighting startup Light Cognitive, at 2.10pm on Wednesday 11 November.

Dr Lockley and Salomaa discuss how we can benefit from circadian lighting. Circadian lighting is smarter and more realistic than ever before – allowing us to benefit from convincing artificial skylights and natural light features in all spaces.



## 7. SZYMON SLUPIK

Szymon Slupik, CTO and co-founder at Silvair will join Alan Jackson, 'chief evangelist' at Helvar and Paul Drosihn, general manager of The DALI Alliance (DiiA) in a panel discussion entitled: DALI-2® and Bluetooth® mesh: A game changer?

The organisations behind Bluetooth mesh and the DALI-2® protocols have worked together on a specification for a standard interface, allowing DALI® light fittings to talk to Bluetooth mesh wireless lighting controllers and accelerating the development of intelligent and connected lighting systems.



## 8. LARA JIAD

Lara Jiad, associate in the lighting team at WSP, will explore street data and connectivity. Jiad currently has a number of trail sites in the UK looking at highway sensors that monitor drainage to help local authorities with maintenance.



## 9. SOPHIE PARRY

Sophie Parry, technical applications consultant at the Society of Light and Lighting, will give a vital and timely presentation on emergency lighting entitled: 'Your responsibilities under the law'. She will run through our current obligations to ensure compliance in terms of emergency lighting standards, testing and maintenance, including the new 'points of emphasis' additions to the regulations. It takes place on Wednesday 11 November at 9.30am.



## 10. RUTH KELLY WASKETT

Hoare Lea associate Ruth Kelly Waskett will explore lighting for productivity and wellness and

outline a comparison briefing for end users. She will answer questions such as: What is difference between colour-tuneable lighting and circadian lighting and how do they apply in a workplace? What are the measurable benefits to occupants of using these systems? Are they worth the investment in terms of productivity?

Colour-tuneable white LEDs are currently fashionable for offices – but do they deliver any real circadian benefits? Kelly will explore the issue with reference to real-world installations.



## 11 & 12. ELETTRA BORDONARO AND MANEL KHALE



Bordonaro and Khale will explore 'light and the social impact' in a special 'Women in Lighting' session.

Bordonaro, the founder and creative director of Light Follows Behaviour, will discuss how light enables us to evaluate the inequalities in public space and how it can be a vehicle to improve the society we live in.

Khale, of Makali Design, will speak specifically on a ground roots project using solar lighting to tackle problems caused by the recent devastation in Beirut.

In addition to the headline acts, the event will also offer sponsored keynote presentations as well as case studies and interactive learning.

The Emergency Lighting strand includes presentations of the responsibilities of building owners under the law, how to do a risk assessment, emergency lighting for social housing, how to manage emergency lighting across an estate and emergency lighting controls.

The Smart Lighting stream sponsored by Bluetooth will look at how to monitor social distancing using the lights, how circadian lighting transformed life at a Derby care home, the lighting controls behind the City of London become a 'smart city', the compatibility of DALI-2 and Bluetooth mesh and what it means for lighting control, and how street lights that monitor air quality and footfall. The Workplace track will focus on lighting for productivity and wellness. Seminars will explore how to light to the WELL v2™ pilot standard as well as some high profile case studies.

The event will also allow one-to-one meeting facilities, roundtable discussions, video presentations, live polling and Q&A sessions throughout. The popular Lux Awards will close the festival as it makes its digital debut edition in the award's celebrated history.

LuxLive is being supported by Bluetooth, Thorlux Lighting, the Lighting Industry Association, the Society of Light and Lighting, the Institution of Lighting Professionals, Women in Lighting, the Wi-Sun Alliance, Helvar and the Digital Illumination Interface Alliance.

LUX LIVE 2020  
<https://luxlive.co.uk/register-for-the-luxlive-digital-festival-2020>



# TOP GARDEN ATTRACTION INVESTS IN NEW KIND OF BULB WITH LIGHTING UPGRADE

A National Trust property located in the heart of the city, Birmingham Botanical Gardens (BBG) is a leading visitor attraction that brings in up to 250,000 visitors per year.

With Grade II listed buildings and 15 acres of grounds, the large site turned to lighting experts EcolightingUK last autumn to upgrade its current lighting system to LEDs. With hundreds of fittings around the property, BBG make the decision to switch their halogen and fluorescent tubes to LED luminaires in order to lower its electricity and maintenance costs.

Areas including the gift shop, subtropical house and rear kitchen were among the indoor spaces receiving upgrades and outdoor spots include the terrace, bandstand, pavilion and car park. Each area required different types of luminaire, from floodlights to ceiling panels, and PIR sensors and DALI dimming options were also installed.

Due to the nature of the attraction, colour changing lights were also specified for the job as they were necessary for both aesthetic and practical purposes to create visual effects and ambiance at the many events hosted on site.

James Wheeler, chief executive at Birmingham Botanical Gardens, comments, "We are working with Aston University on an EU funded project to reduce the Gardens' carbon footprint and Ecolighting was recommended as a firm to approach for a tender for the work held by the Gardens.

He continues, "Our new lighting is a big improvement on previous installations, making us better lit, safer for visitors, more secure and more energy efficient. This saving in electricity consumption is enabling us to put in improved lighting of our buildings and gardens which is more flexible, creative, colour changing and more easily tailored to the mood and theme of our events. We will receive a benefit of up to 90 per cent savings on our expenditure on electricity for lighting which leaves us with more resource to spend on our core charitable work and makes us a greener organisation in accordance with our charitable aims."

"We are not quite finished but the new lighting is a big improvement on the previous lighting, it's reliable and we look forward to reaping the benefits in due course. Best of all, we didn't have to pay for all of the cost because we received a grant."

As a project that strays outside the norm for Ecolighting, the lighting required for the site's beech trees and aviary lawns were a stark contrast to its usual applications. To meet the outdoor requirements, RGBWW floodlights are being installed at the front of each rose garden in front of each of the two aviaries and new underground channels for cable with concrete plinths were required to provide power. Protective cages were also constructed for each floodlight and to add further control each floodlight was fitted with a time clock to maximise savings as well as provide

extra control should it be required in the future.

RGBWW floodlights were also specified in the terrace, bandstand and pavilion. The gift shop has received LED ceiling panels and spotlights and emergency lighting has been upgraded in the subtropical house.

Following the successful initial installation, BBG asked Ecolighting for extra works to be carried out. These include an external sign, upgrades in its Mediterranean and Arid houses, the Japanese garden as well as new lighting for its toilet blocks.

Unlike many other lighting companies, Ecolighting has its own team of lighting and electrical installation engineers as well as carrying out the lighting scheme design with Relux software in the early stages of client lighting projects. The company also manufactures its luminaires in the UK and uses UK-sourced Osram control gear and LED chips. All of this means that the company has much better control than many and can present better value for money to clients. The company is also a Carbon Trust Accredited Supplier and is assessed to BSEN ISO 9001:2015 and ISO 14001:2015.

As one of the UK leaders in LED lighting solutions to commerce and industry, Ecolighting has worked with many big name companies such as Amazon, Bibby Distribution, Kuehne Nagel, Debenhams, Carlsberg, Culina, Cadbury and Great Bear.

**ECO LIGHTING**  
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# COMMERCIAL LIGHTING: THE CHALLENGES

Commercial lighting is a fast-moving industry and getting the lighting right for your next project can be a challenge. Red Arrow explores the number of factors contractors must consider for each installation...



With the gradual increase of energy costs, end users are beginning to realise that low energy lighting is the way forward. And with lighting accounting for 20% of all energy consumption in the UK, any way to make it more efficient can dramatically cut costs.

## ENERGY EFFICIENCY

The best starting point? Good lighting design. Particularly when working in a site refurbishment where the easy route is a simple one-for-one replacement. While cheaper in terms of initial installation, both for the customer and contractor, it can often be beneficial to design an installation with the right products to suit the space. Therefore, offering longer-term benefits and a better lit environment. For example, switching existing fittings for LEDs reduces ongoing running costs while saving money on annual maintenance, as they have a longer lifespan than more traditional solutions.

## LIGHT QUALITY

When it comes to light quality, essential best practice is to choose light sources with the right colour appearance for the application they're needed in. For example, 6000K daylight LEDs look bright, but can give a stark appearance in an office where 4000K might be more suitable. Or 3000K, which may create a less energising environment in an office, but create a warm, relaxed atmosphere in a hotel.

It's also important to note that while colour appearance concerns how warm or cool an environment is under a specific light source, colour rendering focuses on how well colour is reproduced – without washing everything out. And selecting a light source with the lighting standard requirement of a CRI (Colour Rendering Index) above 80 is ideal. While high CRI isn't necessary for every lighting application, lower than 80 and the light will render colours in a noticeably unnatural way. And products equipped with back lit technology make a good job at evenly distributing the light across the surface of the panel too.

## LUX LEVELS

The level of outdoor lighting on a clear day is approximately 100,000 lux, but indoor lighting often only reaches 1,000 lux by the windows and 25-50 in the middle area. Which is why lighting schemes should be calculated to allow for compensation – for example,



in supermarkets, 750 lux would be sufficient.

The challenge? All light sources degrade over time, including LED. The solution? Choosing the right product with the right lifetime for inaccessible areas and putting a maintenance regime in place with consideration for easily maintained fittings.

## LUMINAIRE TYPES

According to light industry stats, downlights are still the biggest product group of light fittings in commercial settings. Able to fulfil many applications for ambient lighting, accent lighting and even general lighting – with different types such as fixed, adjustable/tilt, different beam angles, square or round etc – they are adaptable to each goal. For example, they are adjustable to highlight items for accent lighting; and they are available in squares, which can be linked together to create a linear distribution of light in an ambient project. Ultimately, they are designed to create the perfect lighting balance.



## RED ARROW'S TOP TIPS

In commercial buildings, lighting should always reflect the type of activity being performed to ensure people in the space are able to do the task:

### WAREHOUSES

- Warehouses sometimes require a lot of lighting, but LED luminaires with presence detection and daylight dimming sensors can save businesses 70% in costs in two years.
- The distribution and positioning of the light fittings, plus the choice and type of product is important to create the required effect.
- Each installation should be appropriate to the application, for example, the height and spread of the fittings, or taking high racks into consideration.

### OFFICES

- While there isn't a law or mandatory levels for lighting indoor workspaces, BSEN 12464 – the British standard for lighting – and CIBSE Lighting Guide 7 can both offer guidance for your next installation.
- In a standard office, a CRI of 80+ creates a productive and pleasant working environment.
- In general, cooler and white lights are better for working and concentration, perfect for workspaces.

### RETAIL

- A basic retail lighting design comprises two elements – ambient and accent lighting – but the mix is individual to each store's individual look.
- LEDs can be installed as a guide to move customers through the store and highlight products with an accent fitting.
- Colour temperature and colour rendering are arguably the most important part of retail lighting, for example, at front of house.

### EDUCATIONAL SETTINGS

- Good lighting levels are essential in educational lighting, for example, workspaces and whiteboards must be adequately illuminated.
  - Individual controls, occupancy sensors and presence detection can maximise energy saving.
- Red Arrow Electrical Distribution is a streamlined, quality-focussed manufacturer and distributor of competitively priced lighting and electrical products to the wholesale industry, committed to providing an excellent customer service experience, whilst providing a wide range of quality products at very competitive prices.

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**OUR NEW  
PRODUCT  
PORTFOLIO.**

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From shops and hotels through to industrial production halls – LEDVANCE's expanded selection of lighting solutions offer the right solution for various environments. This is because our entire range for standard applications combines technological and design innovations with proven strengths: great value for money, simplified installation and a guarantee of up to five years.





# Future energy efficiency classes

By Fabian Fligge, product specialist, TÜV SÜD

The market for luminaires and light sources has changed fundamentally in recent years. LED technology has replaced the classic light bulb in most cases. Energy efficiency has improved; smart and connected technologies are becoming the new standard. In response, the EU has now published harmonised regulations focusing on the Ecodesign Directive and a new energy-efficiency label.

On the basis of Regulations (EU) 2019/2015 "Energy Labelling of Light Sources" and (EU) 2019/2020 "Ecodesign Requirements for Light Sources and Separate Control Gears", which will apply from 1 September 2021 onwards, the EU will begin phasing out its energy-efficiency ratings A++ to E, replacing them by the new efficiency labels A to G. Both regulations apply to all light sources irrespective of their technology.

The new Ecodesign Regulation (EU) 2019/2020 repeals Regulations (EC) 244/2009, (EC) 245/2009 and (EU) 1194/2012. Their harmonisation and updating has been made necessary by technological change.

## ENERGY LABEL

Regulation (EU) 2019/2015 governs energy consumption labelling and repeals Regulation (EU) 874/2012. It specifies calculation of the ratio of luminous flux to on-mode power. For some types of light sources, the result is multiplied by a specific factor.

Light sources must have an efficacy of at least 210 lumen per watt to be rated in class A. Classes B to G follow in increments of 25 lumen per watt. Industry experts expect only a few light sources to qualify for energy classes A and B at first.

Regulation (EU) 2019/2015 not only governs determination of the energy class; it also details the label to be printed on the packaging of the product. The regulation specifies minimum size, colour and design, but also the label's position on the packaging: If the label is not printed on the front of the packaging, an arrow containing the letter of the energy class must be displayed. If the light source is part of a containing product (e.g. luminaire), no separate label is required. It is sufficient to print a note such as "This product contains a light source of energy efficiency class G" on the containing products packaging. Under the new regulation, the packaging of light sources must also include information about the standby power (e.g. graphics, drawings, or symbols).

Since early 2019, devices subject to mandatory energy labelling in the EU have had to be registered in the EPREL database. In the future, this will also apply to light sources that are part of a containing product. Annex V to Regulation (EU) 2019/2015 includes a list of the information required, including the type of light source, whether it is directional or non-directional, its energy consumption, useful luminous flux and power in on mode. For LEDs and OLEDs, the colour-rendering index and lumen maintenance factor also need to be entered.

## CHANGES IN ENDURANCE TESTS

These new obligations necessitate changes in the endurance tests used to measure lumen maintenance. So far, light sources have been tested over a period of 6,000 hours of operation. In the future this test period will be almost halved. The test itself will be a combination of endurance and switching cycle test, involving 1,200 complete uninterrupted cycles in which the light source is in

on mode for 150 minutes at full power and then in off mode for 30 minutes. This adds up to a total test time of 3,600 hours, throughout which the light source's lifetime of 3,000 operating hours is documented. After the test, the luminous flux of those light sources that survived the test is measured again and the result used to calculate the lumen maintenance factor, which must comply with defined threshold values. In addition, nine out of ten light sources must remain functional after endurance testing and certain criteria pertaining to colour rendering and flicker must be fulfilled.

## AUTOMATED TESTING

According to the requirements and specifications of TÜV SÜD Product Service, the German company Opsira has developed a variant of a "robogonio" - a fully automated inspection robot equipped with a photometer and a spectrometer. This worldwide unique measurement system can use up to 8,000 sockets in endurance testing without having to remove the light sources after each test cycle - a huge advantage. Using this equipment, manufacturers can collect information on luminous intensity and light spectrum that enables them to describe their products with precision and implement optimisation measures at any time.

The two new regulations will apply from September 2021 onwards, harmonising the requirements for light sources. Given this, the market must prepare for new and up-to-date labels and energy efficiency classes. Manufacturers, distributors, and marketers will benefit from automated test methods like those offered by the TÜV SÜD laboratory in Garching near Munich.

TÜV SÜD  
tvsud.com

# KNIGHTSBRIDGE LAUNCHES SELF-TEST EMERGENCY LIGHTING RANGE



The self-test feature is built into each product and conducts routine functional and duration testing in accordance with the relevant standards, obviating the need for costly manual testing and intervention other than to record and rectify faults. With no requirement to isolate the mains supply to test, there is no disruption to the normal working day and no loss of productivity.

After installation and an initial 24-hour charging period, the product conducts its own self-test operation. This comprises of a 3-hour duration test, after which a 30-second 'monthly' function test is carried out every 28 days, and then yearly another 3-hour duration test. Following each self-test sequence, the unit will revert into charging mode.

The unit's status and any fault modes are shown by the bi-colour LED indicator. A green light is displayed in normal running mode, while a red light operates to indicate the following: one red flash indicates a battery fault, two red flashes indicates a lamp fault and three red flashes indicates a duration test failure. Manual initiation of the testing procedure is also possible should it be required.

When it comes to emergency lighting, the new Knightsbridge range of self-test luminaires puts safety first while requiring minimum manual intervention post installation, therefore keeping costs down.

**KNIGHTSBRIDGE**  
[mlaccessories.co.uk](http://mlaccessories.co.uk)

**K**nightsbridge, one of the UK's leading brands of lighting and wiring accessories, is introducing a range of self-test emergency lighting products that offers convenience, compliance, cost savings and ease of fault

identification. The comprehensive, LED-powered range, which is ideal for retail, commercial, industrial and HMO applications, comprises of a robust bulkhead unit, a contemporary downlight, high lumen twin spotlights, and a versatile exit sign.

## Helvar and Steinel join forces for next-gen DALI-2 lighting control solution

**H**elvar and Steinel announced their international partnership, which they hope will combine Steinel's expertise in sensing technology with Helvar's expertise in Intelligent Lighting Solutions.

Blending the precise, high-quality sensing of Steinel with the intelligent solution capabilities of Helvar will serve benefits such as increasing sustainability by delivering highly efficient buildings, both in terms of optimising energy as well as space. In addition, creating more intelligent buildings for the benefits of enhancing wellbeing, comfort and productivity to its building occupants. The Lighting Industry is becoming more interoperable, and driving this trend are recent advancements in open standards such as DALI-2 and Bluetooth. As a result, customers are demanding systems which consist of high-quality products, from multiple manufacturers, to form the most efficient solution.

Helvar and Steinel have recognised this and their partnership will be the first of its kind to be

formed between two manufacturers around the multi-vendor interoperability offered by the DALI-2 open standard. With the partnership, Helvar will start to offer selected DALI-2 Steinel sensors as part of Helvar's portfolio at the end of the year (2020). Those selected sensors will complement Helvar's existing sensor range as part of the Helvar's Imagine Solution. Both companies share compatible technologies as well as the same company vision, hence will be looking for further opportunities to maximise their partnership in the future.

DALI-2 is the natural commercial starting point for the partnership as it is the open standard for Lighting and Lighting Controls for which both companies provide products and solutions. The future of this partnership could see solutions for Intelligent Buildings combining next generation people detection and multi-parameter sensors by Steinel with the cloud analytics and intelligent insights by Helvar's Digital Services.

"We are excited and proud to enter into a partnership with Steinel!" states Adel Hattab, CEO of Helvar.

"We both share the same vision about the sustainability of the future intelligent building and the wellbeing it offers its users. Together we can provide our customers with the benefits of DALI-2 interoperability in combination with our leading lighting control system." Martin Frechen, Managing

Director of Steinel, complemented this by stating: "Building Intelligence is the new buzz these days.

Energy-saving, healthy environments and wellbeing are the benefits of buildings in the future. We are proud to be in that partnership with Helvar to jointly make these promises come alive. Full system interoperability beyond the norms, two great companies sharing the same vision and working with the same dedication to perfection. We are very excited!"

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# How a smart approach to haul roads can save time and improve safety



Haul roads are a practical and yet necessary cost. Craig Andrews, engineering manager (UK & Ireland) at Wrekin Products, discusses how applying value engineering designs to a haul road can reap a variety of benefits for the contractor

Whether it's across the Highlands or over Lincolnshire fields, utilities projects to fit underground or overhead cables that transport electrical energy from its source, onto the National Grid, and into homes and businesses throughout the UK all require a haul road to safely enable construction traffic to get from A to B to carry out the installation.

Geogrid solutions, which adopt an under-utilised range of products, have been around for decades but many aren't taking advantage of how they can break down the barriers contractors face when constructing haul roads – while also positively impacting all road users.

## UNIVERSAL CHALLENGES FACED BY CONTRACTORS

As a lot of utilities projects require temporary access roads to be constructed across fairly extensive networks – typically in remote locations such as farmland – once complete, the haul road has to be removed and the land returned to its original use.

Understandably, contractors don't want to spend a large proportion of the project's time and money on these preliminary, but vital, works. However, there is a solution that helps to keep costs under control, while also accelerating the programme.

This is where value engineering geogrid solutions can reduce the thickness of the haul road typically by 50%, resulting in substantially reduced construction cost and time.

Along with significant cost reductions, geogrids accelerate the construction programme, improve site health and safety, and reduce the project's overall environmental impact.

The intelligent adoption of geogrid solutions is a two-pronged approach. Not only will there be

significant upfront savings during the construction works, but there will be further cost reductions once infrastructure is in place and it comes to returning the land to its original use. For example, removing a haul road that is 250mm thick as opposed to one that is 600mm won't require as many resources.

If an engineering manager is engaged at the tender stage, the impact on the savings to reduce time and money can also assist a contractor in winning the tender. However, all isn't lost if engagement comes afterwards as savings can still be introduced.

At Wrekin, we offer two grades of geogrids. For permanent, adoptable roads, we tend to use our E'GRID Premium range. However, we also have a more cost-effective E'GRID SX range, which has the same impact in terms of thickness reduction but is lower in initial procurement cost as, ultimately, it is to be used on sacrificial roads.

## CASE STUDY: HINKLEY POINT

The team at Wrekin Products recently value engineered a 10km haul road with geogrids in support of contractor J. Murphy & Sons and Balfour Beatty, for the first new nuclear power station to be built in the UK in more than 20 years. When complete, Hinkley Point C, in Somerset, will provide low carbon electricity for around six million homes.

The power station will generate a lot of additional electricity and the existing network and infrastructure isn't sufficient enough to cope. As a result, previous experience had highlighted the need to engage Wrekin's technical services as a temporary access road was required so construction traffic could drive directly into the sites where new pylons were being erected and underground cables were being installed.

The site itself had a high level of variability in

soils, so a constant cross section that suited those differing ground conditions was needed.

Without a geogrid value engineered solution, the client would have needed to install a cross section in two compaction layers, totalling 550mm. However, as the haul road was 10km long, this would have been an additional drain on the resources required for installation – when a single compaction layer at 250mm would suffice. As a result, 100,000 sq m of Wrekin's E'GRID SX 3030 – with a bespoke width of 4.5m to suit the subgrade interface – was installed.

This substantial reduction in foundation thickness significantly reduced the impact on costs and the environment. Most importantly, it accelerated the construction process, so recouping time and money. The ultimate exhuming of the temporary access road once the project is complete will also be much more cost and time effective.

The project also highlighted the importance of early contractor involvement as it enabled J. Murphy & Sons to make the savings up front, which was of prime importance to keep costs and risks under control, while accelerating the programme.

In conclusion

Whether nuclear, wind-generated, underground or overhead cabling, all utilities projects in the power sector need a haul road to provide safe access. These preliminary works are a prerequisite and value engineering with geosynthetics offers a simple and efficient way to save time and money.

Ultimately, value engineering goes well beyond financial rewards – it can accelerate the construction programme and reduce haulage, which positively impacts all road users. Less HGVs on our network, means less potholes, and any reduction in resources could save lives.

**WREKIN PRODUCTS**  
wrekinproducts.co.uk

# THE IMPORTANCE OF MACHINERY SAFETY



UK manufacturers are advised to ensure robust safety checks, as well as competency assessments for staff, are carried out, before restarting machinery that has been left idle due to lockdown restrictions or social distancing because of the coronavirus pandemic, suggests Euchner, a leading specialist in safety engineering.

As the economy starts to recover and factories reopen or ramp-up their production, machines should be inspected to ensure they are still safe to use, a requirement of the Provision and Use of Work Equipment Regulations (PUWER). This includes the use of Risk Assessments to uncover potential hazards that may occur during the reintroduction or scaling up of machinery, to identify and resolve any issues that potentially pose a risk to employees.

A challenge facing the manufacturing industry is the possible effect furlough and self-isolation is having, leading to staff shortages resulting in operators running plant and equipment they may not have experience of, or had any formal training on. This includes the often-stretched maintenance teams. It's vital that employers reassess the competence of their employees to run machinery they may not have operated for some time.

PUWER is a requirement for companies to ensure that all their work equipment including machinery is safe to operate. Thorough checks before restarting equipment that has been

mothballed due to the virus could prevent accidents, injuries or fatalities, as well as avoiding potential imprisonment or unlimited fines under the Health and Safety at Work etc Act 1974, which could run into millions of pounds.

Service and consultancy safety professionals from Euchner have experience from across multiple industries and can bring knowledge and best practice to help compensate for staff shortages and bridge the potential gap between an organisation's Health & Safety (H&S) management and its engineering team by assessing machinery and operating procedures from an independent viewpoint.

Often in-house assessments identify that guarding and safety equipment is present on the machine, such as light-guards, safety interlocks and emergency stops, but the control philosophy behind these devices is not always considered. By utilising Euchner's experience, engineers and H&S managers can learn the consequences of shortcomings in the safety system that could cause equipment to fail in a dangerous manner.

Euchner does not only undertake PUWER assessments but can also help by suggesting unbiased safety solutions, so that the end user is not only made aware of where their equipment falls short of the regulations but giving them practical advice on how to put it right.

Euchner's UK&I Services Manager, Paul

Simons, said: "We are here to help people negotiate a way through the plethora of safety regulations, standards and best practice, to ensure the safety of their employees and keep production flowing safely. Where there is an inherent danger for personnel operating machinery and potential hazards that need to be addressed, following the letter of the law can be quite complex for companies that don't have the time, resources or expertise to keep pace with standards and regulations."

Engaging safety experts is a sound investment by end users and machinery manufacturers, whether their equipment is new on site, has been left idle for a prolonged time, undergone upgrades or they are employing fewer experienced operators. As a global company Euchner can provide the necessary solution for avoiding accidents and making new or existing machinery safe, and help end users avoid the resulting cost both financially and to reputation.

The company's flexible Service and Consultancy division now provides the knowledge and focus to facilitate health and safety assessments for clients to ensure machinery is safe to use for people coming back to work and compliant with the current regulations and standards including PUWER.

**EUCHNER**  
[euchner.co.uk](http://euchner.co.uk)

# Technology must be core of fire safety for UK schools and hospitals



By Marc Gaunt, segment lead, commercial buildings, Eaton

As part of the government's economic recovery plan, Rishi Sunak unveiled a £1 billion scheme over the summer to improve energy efficiency and boost low carbon heating in public buildings, including schools and hospitals. Although a step in the right direction for the economy and our efforts to achieve zero carbon emissions, many public buildings remain at high risk of fires which could endanger lives – an issue the new funding does not take into account.

Comprehensive building safety should be of the utmost importance in the health and education sectors given they have the highest rates of fatality/injury requiring hospital treatment. We can't risk this falling off the priority list in favour of the UK government's green package. Instead, building safety must be included within the government's pledge to 'build back better'. However, beyond government support, it's vital that those responsible for upholding building safety standards in schools and hospitals consider what new technologies can be deployed to mitigate the risk of fires and ensure the safe evacuation of occupants in an emergency situation.

## FIRE SAFETY IN EDUCATION AND HEALTHCARE BUILDINGS

Figures from an FOI looking into the Department for Education's school condition data collection (CDC) programme (2017-2019) revealed a clear lack of enforcement of basic fire safety standards across the education sector. The programme showed 2,717 (13%) of UK schools did not have a fire risk assessment, 2,098 (10%) did not have an electrical test certificate and 2,215 (11%) did not have a gas safety test report. Additionally, data from the Home Office highlights that education premises accounted for 4.2% of primary accidental

fires across the UK in 2018/2019, whilst hospitals and medical care buildings accounted for 3.8%. Furthermore, 20% of fires in 'other dwellings' in London (not houses or flats) in 2019 occurred in nursing/care homes or hospices and 14% occurred in student residence halls.

These numbers paint a clear picture of the fire risk present in buildings where some of our most vulnerable members of society are learning, recovering from illness, living and working. At present, the UK government is laser focused on carbon reduction and hazardous cladding in high rise residential buildings. Both are important issues but this 'tunnel vision' comes at the expense of wider building safety, which is worryingly overlooked in densely populated buildings such as schools and hospitals. A lack of understanding around fire risks combined with a shocking lack of basic safety standards in some schools means urgent action is required.

## HOW CAN TECHNOLOGY MITIGATE THE RISK?

The government and those responsible for building safety must prioritise fire safety and improving standards in UK buildings, but this can only happen with a holistic approach. This needs to include investments to meet safety needs across the entire spectrum of risk, both now and in the future.

In 2019/2020 Home Office data found 10% of fires in the UK were due to electrical distribution faults, which is especially disheartening given that electrically-ignited fires can be prevented before they even start through Arc Fault Detection Devices (AFDDs) while adaptive emergency lighting can help to avoid congestion to get people to safety quickly during an emergency – both of which are

readily available in the UK today.

As hazards continue to evolve, facilities managers, building owners and the government must work together to assess the complex nature of risk in buildings today and take stock of existing technologies to ensure they are upholding the highest standard of safety possible.

## WHAT DOES THE FUTURE HOLD FOR BUILDING SAFETY STANDARDS?

The Hackitt Review – commissioned following the Grenfell Tower tragedy – encourages the government to take a more robust approach to defining new building safety standards as these only apply to a small set of commercial buildings considered 'high risk' at present (specifically multi-occupancy high-rise residential buildings). Yet, the height of a building alone is not sufficient to characterise risk. In fact, the review explicitly calls out hospitals and education buildings as some of the most high risk considering their complexity and the potential vulnerability of occupants, highlighting why the government should bring in specific measures to build additional protection for the occupants of these buildings as soon as possible.

We need to see a paradigm shift in building safety culture – evolving from 'fit and forget' to selecting and maintaining the right solutions based on the application and risk. By implementing the right technology and revisiting building safety standards more regularly, facilities managers and building owners can effectively protect people, assets and their reputation, dramatically improving the safety of our schools and hospitals.

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# JTL signs charter as a commitment to further improve health, safety and wellbeing

JTL, the leading national training provider for electrical and heating and plumbing apprenticeships, has signed the Civil Engineering Contractors Association's (CECA) Health and Wellbeing Charter as part of its Stop.Make a Change campaign (10-23 October).

The signing of the charter demonstrates JTL's continued commitment to improving all aspects of health, safety and wellbeing. JTL will continue to illustrate what good health, safety and wellbeing activities are and utilise the CECA's 'conversation starter' resources to engage JTL training officers in the campaign, as well as using them as part of the regular health and safety checks with JTL learners.

Stop. Make a Change is a national event that allows leading UK contractors, customers and

suppliers the opportunity to speak directly to employees and suppliers about health, safety and wellbeing issues, and to make commitments to actions targeting improved performance in these areas.

Steve Smith, Head of Health & safety at JTL, said: "JTL recognises that mental health issues, such as stress, anxiety and depression, are more apparent in the construction industry than in others sectors, with an estimated one in six workers suffering from a mental health issue. The Stop.Make a Change campaign also coincides with World Mental Health Day (10 October), so we are proud to be able to support CECA's worthy campaign.

"JTL is already partnered with the Electrical Industries Charity (EIC) to offer a range of welfare

support services to all of our learners and employers working within the electrical sector and the wider building services industries. As part of Stop.Make a Change, we are now looking forward to utilising the 'conversation starter' resources including respiratory, electrical installations, hand injuries and working at height to further support the health and safety of both staff and learners."

Stop. Make a Change will be held between 10-23 October to coincide with World Mental Health Day (23 October) and the European Week for Safety & Health runs from 19-23 October. To learn more, visit [www.stopmakeachange.co.uk](http://www.stopmakeachange.co.uk).

JTL  
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[jtltraining.com](http://jtltraining.com)

## ABB LIGHTS UP BUILDING SAFETY AND MAINTENANCE

NaveoPro, the latest monitoring system from ABB, offers a transparent and proactive way to install, monitor and maintain emergency lighting systems from a mobile device.

Part of the ABB Ability platform of connected devices, this solution offers uncompromised cybersecurity and allows secure integration of data that enables key benefits for all users of the system.

With the NaveoPro app, self-contained emergency luminaires can be easily installed and programmed into a building in a fast and intuitive way. Through the ABB Ability platform, the system provides a digital overview via the cloud, giving instant information to assist resource planning and enhance building safety, which can be processed directly from a smart device.

"NaveoPro allows users to manage their emergency lighting system, while keeping a record of all activity safely in the cloud", says ABB's Thorsten Mueller, Global Product Group Manager Building and Home Automation Solutions. "This gives customers complete peace of mind on their safety installation and creates the possibility for connected emergency lighting solutions in the future. By harnessing the power of the cloud, it



Testing, inspection and maintenance planning can be scheduled to ensure all emergency luminaires are working properly. In addition, functional and duration tests can easily be programmed via the user-friendly app. Faults are automatically detected and reported directly to a mobile device providing anytime, anyplace, anywhere notification. In addition, multiple users can access the data held on the emergency lighting system, which can be emailed, shared and stored to provide a permanent record of the health of an emergency lighting system.

To further enhance building safety, the system sends maintenance alerts in the NaveoPro app, so components can be replaced before a malfunction occurs. All functionalities are in place to optimize the safety of visitors or building users. As a result, there is no unnecessary equipment handling, complicated paperwork, double data entry, searching for the right components or unnecessarily travel for replacement parts. Just one easily accessible database accessed from multiple devices, with clear information, making the task of ongoing maintenance much simpler.

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# Choosing transformers for critical medicine

Modern examination and operating methods would not be possible without the use of electricity. Transformers used in these applications are designed to protect patients, staff and the equipment used in their care, and as such are required to meet demanding specifications. Steve Hughes, managing director at REO UK, explains the key considerations when specifying a medical transformer



Medical requirements for the design of electronic systems can generally be considered among the most rigorous. Because these standards, such as the IEC 60601-1 and the EU guideline 93/42/EEG, are especially demanding of products that will be used on or by patients whose health is already compromised, virtually all components of medical electronic products, as well as the end products themselves, must be designed with safety in mind.

There are lots of key considerations when specifying a transformer for medical applications. For example, there are several types of insulation system temperature ratings for transformers, used for determining the overload capability and life expectancy. The insulation system is the highest internal temperature that a transformer can withstand, with a life expectancy of around 20-25 years when working within the limits.

The IEC60601-1 standard requires medical transformers to pass a high potential (HIPOT)

test – a stress test of the insulation of a device beyond what it would encounter during normal use. Medical equipment with applied parts that have direct contact with a patient is tested at much higher parameters than the norm, testing at 4,000 volts.

The test also determines what will happen when a series of secondaries are shorted out, with one of two possibilities. The transformer will either heat up and catch fire, or if there is an internal thermal fuse present, cease to function. If the transformer does not perform acceptably, it and the equipment in which it is housed fails the test.

Leakage current is one of the most important specifications for medical grade transformers. Medical systems must safely meet the leakage current requirement specified – if several devices are switched together, the overall leakage current increases accordingly. Isolating transformers, such as the TÜV-certified REOMED products, are proven and reliable equipment, limiting the leakage

current and thus helping to ensure patient and staff safety.

REOMED isolation transformers are characterised by their high level of safety and very low magnetic stray field, whilst also providing high efficiency and easy connectivity. In addition to the standard range, custom transformers can be enhanced by adding an electronic starting current limiter, surge protector and mains filter.

While the requirements of medical electronic systems are rigorous, working with the transformer manufacturer can set design engineers on the best path to fulfilling these standards. REO, and its REOMED product range, draws on years of tradition in the production of transformers, and offers solutions which go above and beyond the high standards set.

REO UK  
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# SWITCHGEAR VIEWING SYSTEMS FOR POWER GRIDS

Reliable switch device status is a safety requirement in power grids. However, hard-to-access viewports and sparks from switching processes make direct visual observation difficult and dangerous in power plants today. Live monitoring of switches using specialised cameras minimises risks to human operators by monitoring switches from a safe distance, either locally using a portable video unit or remotely centralised from the control room.



Kappa provides a unique, comprehensive range of extremely robust switchgear cameras designed for safe, live monitoring of GIS, Hybrid Switchgear, GCB, and air-insulated applications in the typically harsh environments of medium- and high-voltage networks. All switchgear cameras can be adapted to any type of viewport/ equipment and specific customer requirements. Scalable stationary or mobile solutions with a portable video unit are available for new



substations or to upgrade running systems. This plant-focused concept assures quick, easy, and safe installation of the switchgear cameras. Reliable, user-friendly software is provided for easy and safe operation. The latest (and smallest) member of its switchgear product line is its new PVU portable video unit for comfortable mobile switchgear

monitoring. Quick, comfortable mobile viewport monitoring without "big" network-dependent solutions? That's where their new battery-powered PVU comes into play: a smart mobile solution for viewport monitoring. 3 cameras can be connected for 3 phases. The image is directly displayed on the integrated monitor. This solution is also ideal for service technicians.

Kappa optronics is an experienced partner for IEEE C.37.20.9-compliant switchgear camera systems (SGC) and the company works closely with major clients in the area of power grids/ power technologies and thus can offer mature solutions that meet all specific requirements on site. Its switchgear camera systems are in use in plants worldwide, contributing to occupational safety.

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## BOWERS ELECTRICALS INVESTS IN THE FUTURE

The global Coronavirus pandemic has not stopped Bowers Electricals who have continued to provide products and services across their range throughout. Indeed, they have accelerated improvements in their facilities that not only enhance the quality levels and customer interaction but ensure a safe environment within the new guidelines.

One of the ways Bowers Electricals are now supporting its customers is to offer fully remote witnessing of our Factory Acceptance Testing (FAT) via secure video and audio link. Customers can view the testing from multiple individual cameras covering both the test area and the control panels with the ability to pan, tilt and zoom to tailor exactly what they wish to focus on.

Bowers Electricals have always driven to provide products to the highest standards and this is evident in them fully testing each transformer to the relevant international standards before it leaves the facility. This attention to detail continues right down to the Rating & Diagram plate which is then fixed to the unit with the test data. Bowers Electricals have recently invested in a Trotec laser engraving machine to ensure the plates are unparalleled quality and finish. They can be done on Anodised Aluminium, Stainless steel and several other mediums to ensure they are easily readable for years to come whatever the environment maybe.

The Motor and Rewinds department has also invested in an iTIG III C12 static motor tester and winding analyzer, the most advance tester in the industry. The iTIG III features over 20 high and low voltage tests including high frequency surge and partial discharge. It has built in PDF software enabling reports to be directly generated for customers.

Finally, Bowers have installed a new system running the 'sign in' app which means staff and visitors can record their arrival contact free via QR code. It also increases Bowers Electricals EHS controls with photo ID for all visitors and adherence to their full induction process. Bowers Electricals have been powering industry since 1947 and still today continue to invest and improve so they can continue to provide products, equipment, servicing and maintenance support to their vast array of customers and industries.

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# KEEPING ELECTRONICS CLEAN

There are ever increasing demands from the consumer to make things smaller and more convenient. As a result, electronic devices are becoming smaller with more densely populated printed circuit board (PCBs) assemblies. While this is largely positive in terms of technological advancement and usability, it does create some practical complications, especially when considering the PCB cleaning process



Particular issues include lower component stand-off making access to the flux residues more difficult, rinsing of the remaining residues and chemistry, and the typical use of 'no-clean' soldering materials which are not designed to be removed in the first place. Trapped cleaning chemicals and partially dissolved flux residues can lead to assembly defects. High reflow temperatures and overheating can also cause hard-to-remove oxidised residue, and the overall variety of contaminants can make cleaning more complex.

In many cases, traditional cleaning methods are not sufficient to achieve the expected standard of cleanliness, so it is critical that considerations are made to accommodate new PCB structures and designs and most importantly consideration is given to the compatibility of the contaminant and what you use to remove it.

## NEXT GENERATION CLEANING PRODUCTS

The latest generation PCB cleaners that break down tough soils without leaving residue are the most efficient choice to target tighter spaces. Superior cleaning also ensures stronger, more active fluxes can be used, resulting in better solder joints and a wider process window for manufacturing. The latest range of cleaning products are rising to the challenge and changing the game – delivering processes that offer better cleaning, consistency, speed and value.

KlensTek cleaning products, developed by Fraser Technologies, deliver superior, environmentally friendly electronics cleaning solutions for a wide range of requirements and applications. These chemistries offer outstanding cleaning power that is gentle on components; non-flammable in ambient air temperatures and pressure conditions; and are environmentally friendly.

The KlensTek Cleaner and Flux Remover aerosol features an attachable brush and ergonomic can design for effective, economic use and is

compatible with a broad range of metals, plastics and elastomers. It is versatile enough to work with almost any defluxing application, including lead-free fluxes. It has a safe exposure limit of 201 ppm, which is comparable to everyday rubbing alcohol, and is a safe alternative to flammable materials such as IPA and flammable aerosols, some of which are being phased out for health and environmental reasons.

The KlensTek SMT cleaner/defluxer is a highly effective, multi-use aqueous cleaning detergent formulated to meet today's exacting standards for both PCB and stencil cleaning. Dilutable to concentrations as low as 10 per cent, SMT can help significantly reduce electronics cleaning process costs. Rigorously tested on the most widely used solder paste and flux chemistries, SMT is proven to achieve excellent, residue-free cleaning results with PCB assemblies, including those with densely placed, low-standoff components.

## ONE STOP SHOP

Fraser Technologies also offers and recommends the Koki soldering range of products, which complement the KlensTek cleaning chemistry range, to offer a one-stop shop for all electronics component needs.

Koki is globally well known for manufacturing exceptionally high quality, reliable products and has over 50 years of experience behind them. Koki leads the field with innovative products to keep up with the rapid changes in technology.

Koki offers the full range of PCB assembly materials, leaded and unleaded solder pastes, solder wires, liquid fluxes for both wave and selective soldering, tack fluxes for repair and rework and SMT adhesives.

Once the PCB is assembled, the KlensTek cleaning range can then be used to remove the flux residues and contamination, before going on to the next step in the assembly process, coating, potting and box-build.

## KOKI IN ACTION

Fraser Technologies worked closely with an Electronics manufacturer which was experiencing voiding under a large surface mount LED component. Part and board samples were sent to Koki's in-house testing facility for analysis, and it was identified that the voiding (bubbles in the flux/solder joint) were preventing the parts from sitting down correctly. This created inconsistent soldering and resulted in poor final test pass rates.

After other paste suppliers failed to find a solution to the voiding issue, Fraser Technologies worked with Koki and the customer to investigate and optimise the process to address these issues. The combination of Koki's ultra-low voiding solder pastes, reflow oven profile and stencil design adjustments, resulted in significant reduction in void occurrence. Subsequent X-ray investigation identified the void ratios for each paste/profile/stencil combination to determine the most recommendable process.

When using Koki's S3X58-M500C-5 solder paste, the voiding reduced from an average 23-28 per cent down to 4-5 per cent. The manufacturer also found that the combination of reduced voiding and successful component seating had improved so significantly that in its final-stage, in-circuit testing for functionality, yields were dramatically increased.

Fraser Technologies has been supplying electronics cleaning solutions for over 50 years and is a trusted partner. The company has achieved such expertise in the field, it developed its own chemistries in order to provide the best possible outcomes for customers.

With an extensive range of products, Fraser Technologies works with customers to identify the best solution for nearly every cleaning application imaginable.

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[frasertech.co.uk/soldering-and-cleaning](http://frasertech.co.uk/soldering-and-cleaning)

# Test fixture enables high frequency measurement of irregular shapes

Electronic components in a wide range of shapes and sizes can be tested using a new test fixture from Hioki. Available from MDL Technologies, the IM9202 makes it simple to take reliable high frequency measurements of surface mount and leaded components when using Hioki's IM7580 range of high-performance impedance analysers.

Use of the versatile fixture makes testing easier, and enables more reliable and repeatable measurements, higher throughput, fewer handling errors and greater measurement accuracy. Its flexibility in use makes it simple to test complex components, with consequent savings in time and costs.

The IM9202 can hold SMDs of irregular shape as well as axial and radial leaded components, including film capacitors and RFID and NFC tags. SMDs from 1.6 mm to 23 mm long can be tested as well as radial components with lead spacings of up to 26 mm.

These types of components are frequently being used in power circuits with switching frequencies above 1 MHz, with standard practice making it necessary to test their characteristics at frequencies above 10 MHz. The IM9202 is suitable for testing at frequencies from 0 to 600 MHz.

"The Hioki IM9202 lets component manufacturers measure devices that are larger than with other test

fixtures," says MDL managing director Mark Lucock.

The Hioki IM7580 series impedance analysers for which the fixture is designed are available in five models, providing measurement frequency bands up to 3 GHz. With a half-rack footprint and a palm-sized test head, they offer test speeds as fast as 0.5 ms with a repeatability of 0.07%. Applications for the new test fixture include the R&D of large or irregular shape components for use in high power, high frequency circuits, as well as components and antennas for RFID and NFC circuits.

**MDL TECHNOLOGIES**  
[mdltechnologies.co.uk](http://mdltechnologies.co.uk)

# DENSITRON SQUARES UP FOR TEST AND MEASUREMENT

Densitron, provider of innovative Human Machine Interaction (HMI) and display technology, has introduced a novel, square format 1:1 aspect ratio 4.0" Industrial Rugged TFT Module with exceptional features designed for operation in challenging environments.

Aimed at instrumentation; handheld test and measurement applications; and niche security products, the module's in-plane switching (IPS) glass uses automotive grade fluid capable of

operating from -30°C to +85°C, ideal for use in harsh environments with extreme temperatures.

Further to this ultra-wide operational temperature feature, Densitron engineers have combined an ultra bright, compact LED design that delivers 1000 candelas per square metre peak luminance in a 2.3mm overall mechanical depth. The module boasts 50,000-hour LED MTBF and is designed for longevity with anticipated production spanning 5-7 years.

Densitron UK business development manager Richard Applin says, "Square format industrial TFT modules have been the preserve of niche avionic instrument clusters, but we see a wider remit within many styles of instrumentation. We wanted to solve real world engineering problems and offer a unique module which can operate in the harshest of environments."

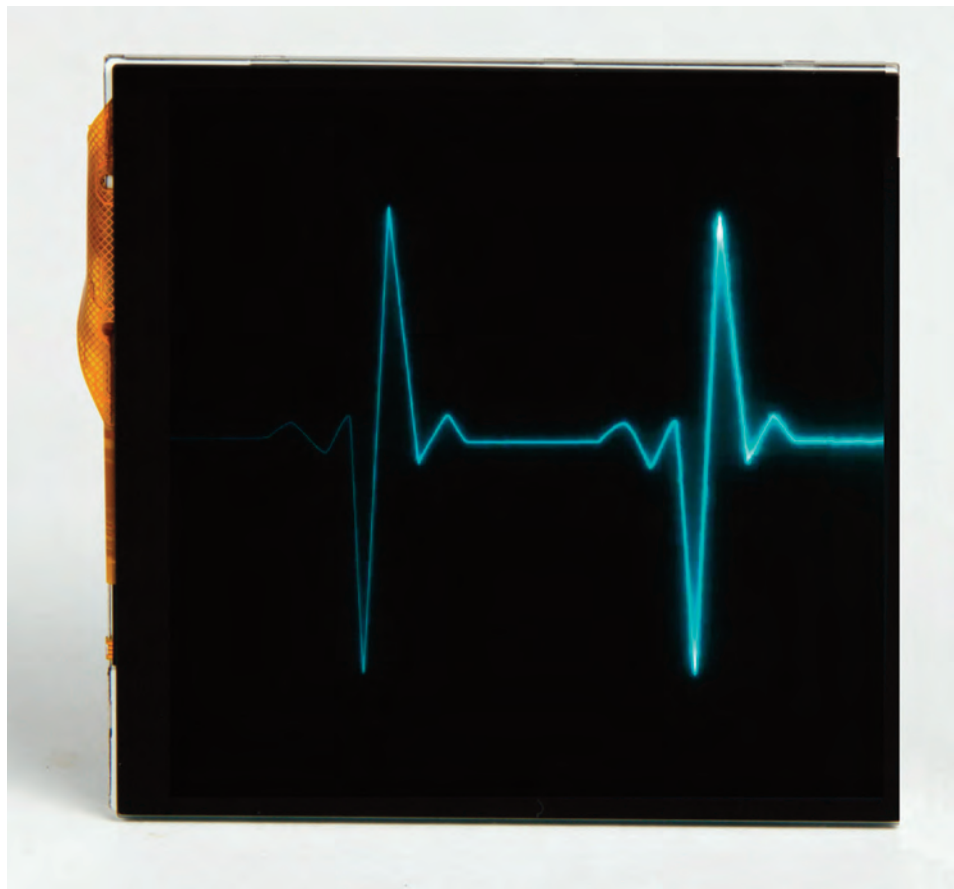
The module's 480x480 display resolution delivers a crisp user interface; large all-round viewing angles; high contrast; and a black default state.

Solisbond, Densitron's proprietary optical bonding process, can be applied between the TFT glass and PCT sensor to improve and enhance optical performance in direct sunlight.

Applications can dim the LED array in low ambient light levels or indoors; but can drive the module at sufficient brightness to counteract the strongest direct sunlight, making this module ideal for outdoor operations. Densitron has also manufactured an industrial projected capacitive touch (PCT) sensor as standard and can offer bespoke cover lens design for any client project.

Continuing to reduce barriers for engineering design, users can benefit from stock holding for samples; fast production lead times; and no minimum order quantity, even for customised orders. Applin adds, "This new display greatly expands the operational range of our industrial display models. As many industries, including broadcast, are expanding their remote production capabilities, this enables those same organisations to reach further into remote environments that would previously have been operationally prohibitive for typical test and measurement devices due to temperature extremes. It's just one more way that our engineers have found to extend the boundaries of what is possible."

**DENSITRON**  
[densitron.com](http://densitron.com)



# Motor testing at its best



## MTR105 Rotating Machine Tester

The new Megger Baker MTR105 hand-held static motor tester is designed for performing multifunctional tests on motors.

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# Explore the possibilities of the measurement world

Test and measurement specialist, HBK has launched the countdown to its virtual Product Physics Conference, taking place from 13th to 15th October 2020.

The HBK Product Physics Conference will bring together interested parties, from an international community of users and partners, to learn more about how leaders of the global test and measurement community overcome their challenges.

A wide range of topics, suitable for different types of engineers will be covered, including industrial electronics and measurement chains set ups, improving the durability and reliability of products, data insight, automating analytics for huge quantities of sensor data, electric power testing, strain measurement, dynamic weighing, sound and vibration analysis, electroacoustics and more.

Presented over three days, this free, user-centric online event will demonstrate how HBK's customers have implemented its tools to address engineering challenges and innovate in



their industries. Attendees can also join interactive discussion panels, dedicated networking areas and presentations.

The HBK Product Physics Conference is the perfect opportunity to share experiences and learn best practices, while expanding personal networks.

"The HBK Product Physics Conference provides a unique opportunity to learn about the latest available industry-leading solutions from technical staff as well as practical use-case application successes from existing customers. Presented over three days, this user-centric, fully virtual conference brings engineers together to understand how HBK has developed leading tools to address engineering challenges and innovate in their respective industries," comments Joe Vorih, CEO of HBK.

He concludes, "HBK will showcase its latest solutions for gaining insights into the performance of products measured in the mechanical, sound and vibration, and electrical domains."

**SENSONICS**  
[sensonics.co.uk](http://sensonics.co.uk)

## VIBRATION MEASUREMENT FLEXIBILITY PROVIDES ENHANCED PROTECTION

The advantages of applying vibration condition monitoring to rotating equipment is well established but this technique can only provide the maximum benefit when applying the correct measurement technique. So what is the correct measurement and should this be implemented?

What if changes to the measurement are needed to optimise early fault detection? Whilst industrial vibration sensors offer a broadband performance suitable for most machines it's the signal processing that makes the difference. Furthermore, the right hardware that provides a range of measurement algorithm options will maximise the return on investment and future proof the installation.

Typically the higher cost of more sophisticated vibration monitoring systems offering this type of flexibility can be difficult to justify for smaller machinery. This is why condition monitoring specialist SENSONICS developed the DN26 G3 protection monitor to provide a more suitable stand-alone monitor to complement their successful range of rack-mounted products. The dual channel din rail mountable unit provides



monitoring of bearing vibration, shaft vibration, or shaft position with fully programmable signal conditioning and with a range of measurement algorithms and sensor options.

The unit is designed for optimum flexibility; as a universal module (single hardware platform) it is field upgradable and fully programmable. Special protection options include slow rotation vibration monitoring down to 0.2Hz and narrow band filter measurements for specific vibration signatures. In addition the DN26 G3 offers a dedicated speed monitor channel which can also be utilised as a

phase reference for further harmonic analysis of the vibration signals. The sensor interface is programmable to accept IEPE type accelerometers / velometers, proximity probes (API 670 standard), and active / passive speed probes.

All sensor signals are available via a buffered interface which provides the option of further detailed analysis if required. Three alarm relays are available as standard (expandable to up to seven relays via a digital interface), one dedicated to indicate module and sensor integrity. The other two relays are fully programmable across the alarm criteria selected and all three input channels measured values are available via a 4-20mA interface.

The unit is available with Ethernet communications as standard, permitting configuration either locally or remotely through the in-built webserver and offering Modbus over TCP/IP for connecting measured data to other plant wide systems. The DN26-G3 features a built-in intuitive colour LCD display and menu drive facility providing various display modes and an alarm historian with real time logging capability.

**SENSONICS**  
[sensonics.co.uk](http://sensonics.co.uk)



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## PP C&A helps EYOTO eye global expansion with new outsourcing partnership



PP Control & Automation, which works with more than 25 of the world's largest machinery builders, is supporting the Aston University School of Optometry spin-out to build its eMap product, the world's first edge to edge, fully digitised, remotely accessible lens analysis system.

The aim with this technology is to give global eye care companies and retailers the opportunity to bring lenses to life at the click of a button, with incredibly advanced surface inspection and full-colour power maps in just 55 seconds.

Volumes are already increasing rapidly with social distancing and Covid-19 and the new Midlands-born partnership will be crucial to helping meet global demand.

Garry Myatt, sales director at PP C&A, comments: "EYOTO had been let down badly and needed a partner they could trust to pick things up and put in place a full manufacturing line that would deliver substantial quantities within the first six months.

"Our ability to have the right skills available in engineering competence, cable preparation and creation, electro-mechanical build and assembly meant we had the majority of what we needed under one roof and then it was simply case of designing the build process.

"One of the key things we did was to invest over £150,000 into a new dedicated Electrostatic Discharge (ESD) and Complex Box Build manufacturing area specifically for eMap and similar products going forward. This ensures that the customer requirements and legal compliance to the recognised standards are met and involved the installation of special flooring, benches and test equipment - all grounded to earth to ensure that life of the electronics is protected from potential electrostatic discharge."

PP Control & Automation used its proven product introduction methodology to take on the eMap contract in a matter of weeks.

Learning 'on the product' was accelerated, with a joint 'Design for Manufacturing' exercise undertaken during the first few machine builds, quickly identifying a number of aesthetic improvements and functional changes behind the enclosure covers.

Despite little set-up time, all deadlines have been met on schedule and production improvements have been incorporated to make it easier to manufacture going forward – crucial when scaling up and targeting global retailers who demand product immediately. The partnership has been built on transparency and trust, with any issues and faults quickly identified and overcome by tapping into the collaborative expertise of engineers and designers at both firms.

"Engaging with PP Control & Automation removed a lot of the stress we were under, as we quickly realised it would deliver on the manufacturing side of things, leaving us free to concentrate on what we do best," explains Claire Mchaddan, vice president of product development at EYOTO. "We went from being in a very difficult position with no manufacturing partner to meeting all of our forward production targets...better still, we now have a dedicated cell to help us scale up eMap volumes and embed future technology launches."

## Seven UK innovators tipped to deliver smart, zero carbon homes

Seven of the UK's most cutting-edge innovators in Smart, Zero Carbon Building Solutions have been selected for a rigorous business acceleration programme at Energy Systems Catapult.

For its fourth 'Innovator Challenge', the Catapult is collaborating with Places for People, to help SMEs unlock new routes-to-market, secure investment and breakdown barriers to growth.

The seven innovators that will get access to advanced energy system expertise from the Catapult plus specialist business support from a wider network of around 40 consultants, include: Amp X, Atamate, Clean Energy Prospector, Pumped Heat, Sero, Studio Victoria and Wondrwall.

Paul Jordan, business lead for innovator support and international at Energy Systems Catapult, says: "Congratulations to the SMEs joining our 4th cohort for the ISP. Yet again we had our work cut out to select participants from the high number of quality applications.

"To achieve Net Zero, we will need to fully decarbonise our 'Buildings & Estates' and the seven companies that we'll now be working with, all have the potential to make a sizeable contribution. I'm delighted to see such a range of solutions from digital platforms and building control, heat solutions and microgrids, to new business propositions like heat- as-a-service and digital twins. Our team is excited to be working with these promising innovators and helping them to accelerate towards full commercialisation."

Julie Alexander, director of technology and innovation at Places for People, says: "The route to zero carbon is complicated, and with the huge variation in property types across the UK, the solutions will be varied, and in some cases, complex. So much more needs to be done to understand how we can meet this challenge and how we can scale solutions that will be reliable and affordable. Working with Energy Systems Catapult has allowed Places for People to gain access to SME's that bring new and innovative approaches to this challenge, and to understand how we can work across the sector to deliver our own environmentally sustainable objectives.

## Launch of Baxi Assure offers complete home service for contractors

As the UK moves towards net-zero carbon emissions by 2050 and an ever-growing demand for housing, Baxi has today launched a suite of products and services for heating and hot water systems - Baxi Assure.

This new comprehensive residential specification range of products and services has come from carefully listening to contractors, developers and housing providers. They wanted products that are reliable and energy-efficient to meet the growing demands of an ever-changing housing landscape, and a manufacturer who is easy to deal with and whom they can trust - today and tomorrow.

The Baxi Assure product range offers the reliable and popular Assure boilers (formerly Potterton), energy-efficient hot water Assure cylinders, designed by the experts at Heatrae Sadia and Megafluo, and a range of low-carbon air source heat pumps; SAP energy booster accessories such as FGHR; and smart, easy-to-use comfort controls.

This complete home service is backed up by Baxi's award-winning customer service including Baxi Design – to help achieve optimum performance and efficiencies; bespoke product training at centres across the UK; Project Hub to manage project product registrations and technical support and advice from installation to legislation. Furthermore, a dedicated team of Specification Managers provides one point of contact for all your hot water and heating system requirements.

Speaking about the launch, specification director, Tom Murray comments: "With over 150 years' manufacturing experience behind Baxi Assure, part of the Baxi Heating group, we are passionate about investing in and delivering innovative, energy-efficient heating solutions and award-winning customer support for our customers. We are also committed to developing products which use the latest low-carbon technologies to support the UK's transition to net-zero and are dedicated to supporting contractors on this journey."

## Harwin opens £3.8m smart manufacturing facility to address increasing demand for Hi-Rel connectors

Harwin has started production in its new manufacturing facilities at the Portsmouth headquarters in the South of England. Providing an additional 1,200m<sup>2</sup> of factory floor, the new facility is enabling the company to quickly and significantly scale up production of its award-winning high reliability (Hi-Rel) connectors to meet market requirements.

The total investment into the new facility is £3.8m; £1m of this brings in state-of-the-art equipment, with the last few machines arriving within the next 12 months. The new equipment uses advanced Industry 4.0 technology to maximise efficiency.

"Harwin leads technological progression in Hi-Rel interconnect components and the growth in customer demand means we have yet again exceeded our existing production capacity" said Paul McGuinness, Director of Operations at Harwin. "This investment has come at a crucial time, as the additional factory space and equipment enables us to ramp up production to meet high volume demands very quickly. The extra space also gives us over six month's supply of raw materials held onsite, preparing us for unforeseen supply chain challenges relating to Brexit and avoiding any order delays to our customers."

The company has a policy of replacing production equipment every 5 years to keep up with the latest developments in machinery advancements, maintaining reliability and operational effectiveness. In 2016, a new build 3,000m<sup>2</sup> factory was opened, and an R&D Centre and Apprentice Training Hub was set up in 2019. This latest investment also includes a new training area to support staff with ongoing professional development, encouraging advances in skills and job flexibility as the company continues to grow.



## eEnergy Group signs partnership with Venture Lighting Europe

eEnergy Group plc, an "Energy Efficiency-as-a-Service" (EEaaS) business in the UK and Ireland, is pleased to announce it has signed an exclusive OEM partnership with Venture Lighting Europe Limited.

From its manufacturing facility in Castle Donington, Venture Lighting will provide eLight, the Group's Light-as-a-Service" (LaaS) business, with eLight-branded LED technology on exclusive terms. eLight project manages the switch to cheaper, more efficient LED lighting for schools and businesses in return for a fixed monthly service fee, thereby avoiding any costly upfront payments.

The partnership will give eLight its own dedicated, vertically integrated supply chain as well as technology which meets the specific requirements of the business. Chosen after a tender process which included some of Europe's leading OEM manufacturers, with a 35-year heritage, Venture Lighting is part of Advanced Lighting Technologies. This US-based group has 600 employees and an annual revenue of over \$130 million.

The Group believes that an integrated supply chain for eLight will maximise operating efficiencies and is a significant market differentiator. Venture Lighting will hold dedicated stock lines for eLight, significantly reducing the time that it takes to complete installation projects. As well as providing eLight customers with an end to end solution, the improved economics will help the Group maintain or improve margins by enabling eLight to subsidise the cost of finance within its LaaS proposals. This is expected to increase the conversion rate of customers from proposal to signed contract.

Furthermore, an integrated supply chain helps support the future roll out of the eLight App. eLight has developed a bespoke audit app which allows a client proposal to be automatically generated directly from data capture. Developed to allow third-party electrical contractors the ability to offer the eLight LaaS solution to the SME market, the app will create a whole new market opportunity for the Group. These contractors will be able to quickly access the dedicated eLight stock held by Venture Lighting for their own client projects.

One of the key reasons the Group selected Venture Lighting was because of its UK manufacturing and warehousing facility.

## BES INJECTS SPECIALIST EXPERTISE INTO VMIC VACCINE FACILITY FIT-OUT

BES, the specialist in design and construction of advanced environments for the pharmaceutical and healthcare sectors, has been appointed to fit out the new Vaccines Manufacturing Innovation Centre (VMIC), which is being fast-tracked for early completion in 2021 due to COVID-19. A not for profit organisation established to provide the UK's first strategic vaccine development and advanced manufacturing capability, VMIC has taken a leading role in advising Government teams on vaccines manufacturing in response to COVID-19. Based at Harwell Campus in Oxfordshire, the organisation's new 7,400m<sup>2</sup> specialist manufacturing centre will enable vaccine developers to refine their processes, prepare vaccines for clinical trials, and scale-up for mass production in the event of any future public health emergencies.

This Government-funded project was already planned prior to the pandemic, with completion originally scheduled for 2022. The urgent need to produce vaccines at scale to fight future pandemics has prompted the project handover to be moved forward by 12 months.

A Government grant of £93million was awarded to VMIC in May 2020 to fast track the build and expand its manufacturing capacity. The highly specialist facility will form a key element of the Government's future pandemic response and, when completed, will be capable of producing 70 million pandemic vaccine doses in just 4-6 months.

With more than 18 years' experience of delivering complex pharmaceutical environments, BES will leverage the expertise of its multidisciplinary team to provide design coordination and internal fit-out of pre-clinical development laboratories, vaccine manufacturing suites, cold storage and filling areas. Working collaboratively with principal contractor, Glencar Construction, BES will provide integrated process, architectural, mechanical and electrical services to meet the challenging programme and complete the state-of-the-art centre to the highest standards.

Steve Marsh, managing director of BES commented: "Effective vaccines play an important role in public health, and the new VMIC facilities will enable the UK to respond quickly to new health risks, including pandemics, by enabling large scale production of vaccines for both clinical use and emergency response."

Eddie McGillycuddy from Glencar Construction said: "Delivering this project will be a major milestone in achieving improved resilience to the pandemic and to any future public health challenges. We are delighted that BES has joined our team and we look forward to rapid progress on site."

COO of VMIC, Chris Lucas, added: "Delivering the VMIC facility during a pandemic is challenging, and the need to fast-track the project by a year has resulted in a level of complexity unparalleled in construction. With their level of expertise, BES will form an important part of the collaborative group delivering this project of national importance."

## Stay Safe with Snickers Workwear protective wear solutions for Men and Women

**Snickers Workwear –Your Health, Your Safety, Your Wellbeing On Site**

Long working days and cheap uncomfortable clothing makes Snickers Workwear's protective wear range the better-informed choice for men and women working in hazardous environments and inclement weather.

There's a comprehensive selection of ergonomically designed Base-, Mid- and Top-layer clothes, certified as appropriate for different risks at work to ensure comfort, health and workforce-wellbeing all day, every day.



The new range also includes waterproof and windproof AllroundWork Hi-Vis Jackets that provide protection in low-light, high-risk environments.

So, whatever the hazard on site, the Snickers Workwear Hi-Vis collection and ProtecWork range can provide a protective wear solution to provide maximum, certified protection whatever the risks on site.

**Snickers Workwear**

- 01484 854788
- sales@hultaforsgroup.co.uk
- www.snickersworkwear.co.uk

## C.K Magma – The Best Premium Tool Storage Solutions for Professionals

Working with trade professionals gives C.K Magma great insight into what works best to make tasks much easier. Its range of innovative tool storage products do just that, offering the very best options for high quality, efficient tools and test equipment storage solutions. Hardwearing, strong and durable, C.K Magma's wide range of cutting-edge products are built to protect and organise valuable toolkits, with great features and benefits designed to suit everyone's needs.

The current C.K Magma Test Equipment Case has proved a big hit with consumers, but C.K Magma has listened and made the best test meter storage solution even better. By listening to feedback and its focus and commitment to working closely with trade professionals, this has allowed the C.K Magma range to evolve and develop which, in turn, has led to the introduction of new features in its Test Equipment Case Plus (MA2641). Perfect for those who need to easily transport and protect valuable diagnostic test equipment and essential tools in one handy case, the premium Test Equipment Case Plus offers a host of enhanced features and benefits.

This includes: Improved access with easy-opening lid and two retaining straps; a bigger/deeper overall design, suitable for the latest generation of test meters; adjustable padded compartments for the safe transportation of test equipment and accessories; a convenient storage compartment to hold all the essential tools needed, plus 27 easily accessible pockets and a handy business card and document holder. Featuring a durable polyester construction, this quality test equipment case has a 100% waterproof polymer base for increased durability, plus a red inner lining for easy visibility of stored items.



**CK Tools**

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## Snickers Workwear NEW POLARTEC® POWER STRETCH®

**Jackets and Fleeces – the 'Sustainable' Choice.**



Sharp, stylish looks and market-leading recycled POLARTEC® fabric technology make these a must for the autumn on site or outdoor leisurewear.

Snickers Workwear continues to lead the way with working clothes that have an ergonomic design, superb functionality and fit – for both craftsmen and women.

The versatile FLEXIWork full-stretch jackets, deliver a tight, body-hugging fit with efficient moisture transportation and durable shape retention plus great freedom of movement. There's also long johns to match for full body insulation.

The AllroundWork fleeces and bodywarmers – made from 80% recycled polyester - are packed warmth and comfort to keep your body warm or comfortably cool when you most need it.

Fashionable and functional, they combine practicality with street-smart looks and the right kind of sustainable choice.

**Snickers** • 01484 854788 • sales@hultaforsgroup.co.uk • www.snickersworkwear.co.uk

## Wieland's New sensor PRO safety limit switches ensure a safe, reliable position monitoring solution

The new sensor PRO safety limit switches (series SLS) from Wieland provide safe position monitoring in virtually any industrial application. With a metal actuator that can be turned and swapped without tools, sensor PRO SLS switches are a highly reliable position monitoring solution rated to IP66/ 67.

Series SLS switches are suitable for use in conveyor object detection, end-position control, door position detection, and many other safety applications. Actuation of the switch contacts is monitored by Wieland's safety relays, samos@PRO COMPACT safety controller, or similar devices and will shut down the machine immediately, addressing any safety hazard.

The new switches have self-cleaning contacts that provide a maximum reliability of 1mA at 24VDC and a life of up to 30 million operations. They offer the highest of switching even at very low currents and are extremely robust due to the metallic actuator and mounting bracket.



**Wieland**

• 01483 53123

• www.wieland.co.uk



## CENTIEL Partners with Seahorse Electrical and Maintenance Services Ltd

Leading UPS manufacturer, CENTIEL UK, has joined forces with electrical sub-contractor Seahorse Electrical and Maintenance Services Ltd. Seahorse has now become one of CENTIEL's preferred partners for DC and AC works.

Louis McGarry, sales and marketing director, CENTIEL UK explains: "We have a long-standing relationship with the team at Seahorse and have recently completed several large projects with them including a 7.2MW installation at a major medical facility. We are now delighted to cement this relationship on an ongoing basis."

"Most recently we have worked with Seahorse to complete the installation of a new UPS to protect the power to a central London Venue. Located close to Covent Garden, the entertainment space is within an historical building used for dining, parties and drinks receptions, meetings and conferences for up to 1,000 delegates. The new UPS now supports the power for the entire building including lights, lifts, sound systems, a small gift shop, the internet, phone system and servers."

**CENTIEL**

• www.centiel.co.uk



## New 300W is introduced to the RB Series, suitable for Factory Automation & Robotic Controller

The new RBC300F is suitable for factory automation and robotic controller applications. The new 300W AC-DC open frame configurable power supply measures at 114x38.3x203mm and offers triple output with UART Communication Interface for monitoring & control of up to 49 commands (PMBus to follow).

The new RBC300F has 3 outputs, so no need for an isolated transformer, the 3 outputs offer:

1. Output Slot 1 offers 240W with: 12V, 24V or 48V
2. Output Slot 2 offers up to 30W with configured outputs of: 3.3V, 5V, 12V, 16.5V, 24V, 48V, ±12V, ±15V
3. Output Slot 3 offers up to 30W with outputs of: 3.3V, 5V, 12V, 16.5V, 24V, 48V

The RBC300F offers efficiency rating up to 92% and a universal input voltage range of 85-264V. There are options to have conformal coating, remote on/off, low leakage current, external hold-up capacitor bank as well as further options for chassis/cover and terminal blocks.

### Components Bureau

- 01480 412233
- info@componentsbureau.com
- www.componentsbureau.com

## Constant Power Services launch Data wheel

- Struggling to find the right size UPS?
- Are you looking at multiple sites and projects?
- You know the kVA rating you require but which product do you need?
- Will it fit the space?
- What is the maximum output current?

The Constant Power Services data wheel is designed for convenience, simplicity and will arm you with the information you need to establish which Riello UPS you require, without searching through datasheets and catalogues.

A comparison across the ranges enables you to make a quick informed decision.

This tool has been designed for convenience and simplicity to aid Electrical contractors, facilities managers and customers will multiple sites to obtain the key information relating to the Riello UPS range and once the UPS required is identified the key components regarding dimensions, weight, heat outputs and maximum output currents etc can be built in to the specification of the project.

Constant Power Services are continually accessing our customers' requirements for information and developing tools and documentation to provide them the answers to their problems or queries.

### Constant Power Services

- info@constantpowerservices.com



## CP introduces new family of high-level lighting controls aimed at industrial premises



The new family of high bay presence detectors from CP Electronics provides enhanced energy savings through precise light control and long-range detection capability. With a mounting height ranging from 5m to 20m, the 360° detection coverage remains the best in its category, with a detection range diameter of 30m for walks towards, and 40m for walk across when mounted at a height of 15m. The in-built five pyro design ensures detection of small movements, waving arms and nodding heads etc, with no compromise on design.

With a field of view of 60°, light is detected from all possible directions, allowing better interpretation of the available amount of natural light in the environment. External positioning of the communication inputs also aids in better reception from the commissioning remote control up to a maximum mounting height of 20m, thus easing the setup and testing time.

### CP Electronics

- 0333 9000671

- www.cpelectronics.co.uk

## 24V DC UPS with integrated Li-Ion battery protects against plant downtime and data loss caused by power failures

The reliable and fail-safe DC power supply of embedded IPCs, controls, motor drives, sensors, measurement devices and safety technology is of fundamental importance in networked high-tech systems worldwide and in almost all fields of application. Plant downtimes, system failures and loss of data can become risky and costly. By using intelligent DC UPS systems, this risk can be significantly minimized and the uninterruptible power supply and thus reliability is assured. For this purpose, the power supply specialist Bicker Elektronik, Donauwoerth / Germany, presents a particularly compact and durable solution with an excellent price-performance ratio: The new DC UPS module UPSI-2406DPI with integrated Lithium-Ion backup battery, which bridges power failures, brownouts and flicker in the 24VDC power supply. Due to optimized power electronics, DC loads of up to 100 Watt can be safely bridged.



### Bicker

- www.bicker.de/en/UPSI-2406DPI

## Yokogawa's European Calibration Laboratory meets new ISO 17025:2017 standard

Yokogawa reinforces its leadership position with accreditation for higher frequency power measurements at up to 100 kHz.

Yokogawa's European Calibration Laboratory has achieved accreditation to the latest revision of ISO 17025:2017 standard, for power measurements at up



to 100 kHz. This accreditation offers quantifiable proof of the laboratory's advanced calibration offering, ensuring users of the facility achieve the world's most accurate measurement results from their power measurement equipment. It offers quality assurance and a trust in measurement results, allowing engineers to develop the next generation of technologies that combine energy efficiency with leading performance.

The standard ISO/IEC 17025:2017, General requirements for the competence of testing and calibration laboratories, enables both Yokogawa's European Standards Laboratory and its customers to demonstrate that they operate competently and generate valid measurement results, promoting confidence in their work both nationally and around the world.

As a result, test reports and certificates can be accepted from one country to another without the need for further testing.

### Yokogawa

- www.yokogawa.com

FREE SYSTEM  
DESIGN SERVICE



ESP launches free  
design service for  
CCTV and Fire systems

ESP has launched a free, dedicated design service which will allow contractors access to a design facility that will cover CCTV Systems and Fire Systems.

Available to any size of business, the aim is to provide expertise in choosing the right products and solutions to create a scheme that meets all the requirements and objectives of the project in question, and that is compliant with all the relevant regulations and standards.

From an initial enquiry the next stage will be one of information and measurements gathering. For larger and more complex design schemes, a visit to site will be carried out for a detailed survey. With all the relevant information gathered, including drawings and specifications, a suitable design proposal for a CCTV System or Fire System will be created and supplied to the client along with a quotation. Two-way interaction between customer and the ESP design team throughout the process will be of paramount importance to ensure the design scheme meets all the necessary requirements.

ESP • 01527 515150 • www.espuk.com

New generation of modular connectors  
from Stäubli cuts assembly and  
maintenance costs

Designed to cut assembly and maintenance costs to the minimum, the new CombiTac direct family of modular connectors introduced by Stäubli features a Click-and-Connect system that enables all parts to be quickly assembled manually without the use of any special tools.

With a light, modern design incorporating the highest level of safety features, they can be fully customised to meet customer requirements. Each carrier and frame is coded, eliminating any possibility of assembly error or incorrect polarity mating between male and female connectors.

All configurations, whether for panel mount or housing applications, ensure a constant and reliable connection for signals, power and pneumatic coupling for up to 10 000 mating cycles.



CombiTac direct modular connectors have been designed to cut assembly and maintenance costs to the minimum.

Stäubli Electrical Connectors

• 01908 265544

• www.staubli.com

Scolmore stays one step ahead with  
new anti-viral testing



With an increasing emphasis on building cleanliness, Scolmore has taken a further step to ensure that its wiring accessory products offer enhanced hygiene properties. The company's popular Mode, Mode Part M and Polar plates have now been independently tested and have shown to have anti-viral properties against enveloped and non-enveloped viruses. After a contact period of 4 hours, all tested plates were shown to have a 99.9% kill off rate against enveloped viruses and a 92% kill off rate against non-enveloped viruses.

This new anti-viral testing is in addition to the anti-bacterial testing already carried out. Mode, Mode Part M and Polar are all manufactured using Urea Formaldehyde, which has similar inherent properties to antimicrobial additives that inhibit the growth of infectious diseases. When independently tested, all products achieved a 99.99% kill off rate across all four types of the strains of bacteria – MRSA, E-Coli, Salmonella and Klebsiella Pneumonia.

Mode is a range of contemporary, white wiring accessories and is the company's best-selling wiring accessories collection to date.

Scolmore

• 01827 63454

• www.scolmore.com

IDEAL Networks honoured by 2020  
Cabling Installation & Maintenance Innovators Awards



IDEAL Networks' LanTEK IV cable certifier has been recognised among the best in the industry by the 2020 Cabling Installation & Maintenance Innovators Awards. IDEAL Networks was confirmed as a Gold honouree in the Test Equipment category.

A stellar line up of third-party judges, which included cabling and communications system specifiers, designers, integrators and managers with vast professional

experience, selected the honourees. Entries were judged against criteria such as innovation, value to the user, sustainability, meeting a defined need, collaboration and impact.

"We launched LanTEK IV to give users a new and unique way to certify copper and fibre cable that would also boost their productivity and provide overall time and cost savings," says Tim Widdershoven, Marketing

Director for IDEAL Networks. "This certifier has certainly set a new standard for the industry and delivers a wide range of benefits to users and their customers, so we are delighted that this innovation has also received the honour of a Gold level Award."

With LanTEK IV, users can now conduct and save a Cat6A test within 7 seconds. The tester's enhanced functionality certifies links up to Cat8, including TCL and Resistance Unbalance and will sweep to 3000MHz providing room for future ratified ISO and TIA test standards.

LanTEK IV also includes the patented VisiLINQ™ permanent link adapter, a unique way to test that gives users everything needed to initiate testing and view the results in the palm of their hand. Users simply connect the adapter to the port, activate it, and see an instant result as the adapter lights up – green for a pass, red for a fail. The highly versatile VisiLINQ adapters are suitable for testing and certifying UTP, STP, Cat5e/6/6a/8.1 cabling from the patch panel to the work area outlet. As technicians can do this without even needing to touch the certifier, this innovation helps them to work smarter, saving time and increasing productivity.

With a new approach to certification, LanTEK IV increases connectivity and collaboration in conjunction with the new IDEAL AnyWARE Cloud. The cloud-based test management system allows real time collaboration between Project Managers and Technicians, as well as advanced pre-configuration options, extensive data management capability and professional reporting. Engineers, technicians and installers can simply hit the sync button to transfer results straight from the LanTEK IV to the IDEAL AnyWARE Cloud.

IDEAL Networks

• 01925 428380

• www.idealnetworks.net

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We are a specialist power quality analysis software company. More recently, IMH have been assisting in the new, low-cost PQube instrument from Powerside Laboratory of California and we have been involved in the SEM147 & IEC 61000-4-34 testing instruments specifically developed by Powerside.

Throughout, IMH Technologies has offered an independent power quality consultancy operation that has been used by the major utilities and customers throughout the United Kingdom and offshore.

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