Informing the electrical industry for over **140** years

Electrical Review

January / February 2018
Volume 252 | No 1
www.electricalreview.co.uk

Omicron

Multi-functional testing device saves time and reduces costs for substation asset commissioning and maintenance

Lighting

Converter technology ensures an exact colour location

Electrical Review Excellence Awards

An evening to celebrate outstanding achievements, innovation and collaboration

Always Connected

While you may not be able to control when a power outage occurs, you can take steps to ensure it never impacts on your business. And today when it comes to guaranteeing standby or emergency electrical power, in terms of cost, flexibility and responsiveness, there's really no better option than a generator set from FG Wilson.

Over our 50 year history, FG Wilson generator sets have been installed in more than 150 countries worldwide by organisations and businesses just like yours. You'll find our generator sets in many of the world's most iconic buildings, quietly guaranteeing that they are never without electric power.

And when you entrust your power project to us, you receive the full support of more than 300 skilled technicians who nurture your project from initial design and manufacture, right through to installation and commissioning.

To find out more, visit us at www.fgwilson.com

FG WILSON

EDITOR: Elinore Mackay 020 8319 1807
elinorem@electricalreview.co.uk

PRODUCTION MANAGER
Alex Gold 020 7933 8999
alexg@sjpbusinessmedia.com

SALES MANAGER
Sunny Nehru 020 7933 8974
sunnyn@sjpbusinessmedia.com

ACCOUNT MANAGER
Amanda McCreddie 020 7933 8972
Amanda@electricalreview.co.uk

PUBLISHER
Wayne Darroch

PRINTING BY
Buxton

Paid subscription enquiries
Tel: +44 (0) 1635 879361
electricalreview@circdata.com
SJP Business Media
Unit K, Venture House, Bone Lane,
Newbury, RG14 5SH

Subscription rates:
UK £221 per year, Overseas £262

Electrical Review is a controlled circulation monthly magazine available free to selected personnel at the publisher's discretion. If you wish to apply for regular free copies then please visit: www.electricalreview.co.uk/register

Electrical Review is published by

SJP business media

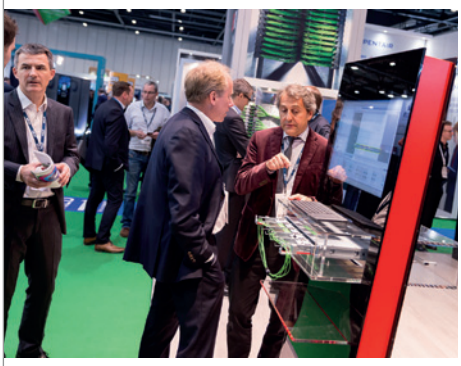
2nd floor, 52-54 Gracechurch Street
London EC3V 0EH
020 7933 8999

ISSN 0013-4384 – All editorial contents © SJP Business Media

abc Average net circulation Jan-Dec 2016 6,162

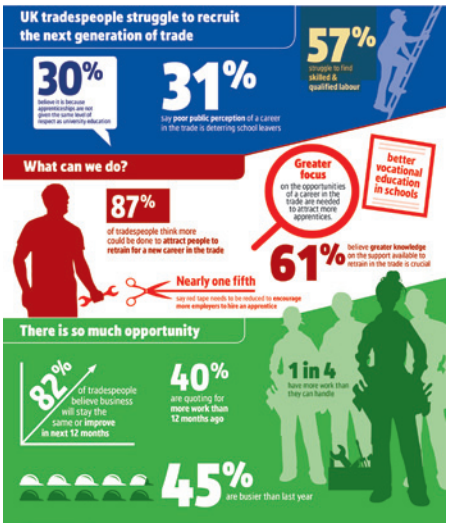
Follow us on Twitter @elecreviewmag

Join us on LinkedIn



UK tradespeople struggle to recruit due to a lack of focus on training

ELECTRICFIX Trade Pulse Press 'The voice of the trade'



More than half of tradespeople (57%) struggle to find skilled labour – 37% think apprenticeships are not respected as much as university and 31% believe school leavers are put off by a poor perception of trade careers

The UK's electricians, plumbers, builders, carpenters and other trades are optimistic about the future, with 82% expecting business activity to remain at the same level or grow over the next 12 months, additionally, nearly half (45%) report being busier than last year.

However, research conducted by trade retailer, Electricfix's umbrella organisation, Screwfix, has revealed the majority (57%) are reporting difficulties in recruiting staff to support them. This is primarily due to:

- a lack of focus on encouraging new people to train in the trades
- not enough local skilled tradespeople
- too much red tape.

For those who struggle to recruit skilled employees, more than one third (37%) believe it is because apprenticeships are not given the same level of respect as a university education. Furthermore, 31% say poor public perception of a career in the trade means school leavers are not interested in pursuing a future in construction.

The research, conducted as part of Screwfix Trade Pulse, a monthly index of more than 500 UK tradespeople, also revealed strong work levels across the trade at the moment, as nearly one fifth (18%) of tradespeople has more work than they can handle and 40% are quoting for more jobs than 12 months ago.

Nearly all (94%) tradespeople said they would recommend a career in the trade and of the reasons why, 85% say they have a strong sense of achievement when a job is done and, 80% enjoy seeing the results of their hard work.

More than half (57%) of those surveyed said they started as apprentices and, when it comes to increasing the numbers undertaking trade apprenticeships, more than one third (35%) believe greater focus is needed on vocational education in schools.

More than one quarter (26%) believe improved awareness about the opportunities offered by a career in the trade would drive greater uptake of apprenticeships, with 19% saying that reducing red tape for employers looking to hire an apprentice should be considered.

The research also looked at views around those entering construction at a later stage in their careers. The significant majority (82%) of tradespeople think more could be done to attract people to the trade further into their working lives. More than two thirds (69%) think increasing awareness of the opportunities available would help attract people into the trade and 61% believe greater knowledge of the support available to retrain is also crucial.

Graham Bell, CEO of Electricfix and Screwfix, comments: "When we speak to tradespeople across our 546 stores, they reflect what these findings show us. Tradespeople tell us they have full work diaries but, many struggle to recruit skilled employees when looking to support their growing business so, it is clear that focused efforts are needed to drive recruitment and training into the trades.

"There is much focus on a reported construction skills challenge with various reasons given including loss of talent during the downturn and a lack of new entrants joining the trade. That's why, now more than ever, all parties including government, suppliers and education providers should work together. It was encouraging to see the investment pledged into improving construction skills by the government in the recent Budget but, collectively, we also need to demonstrate why construction is such a great sector to work in and, help those who may be interested in embarking on a career in the trade to overcome barriers they may face. We also need to support tradespeople who want to take on apprentices or hire skilled labour to support their business at a time of much opportunity."

Screwfix supports the trade however it can, so alongside practical support such as opening a store at the rate of one per week, to bring Screwfix even closer, it offers 'Your Guide to Hiring an Apprentice', a free, bitesize guide available in stores for those tradespeople who may be looking to take on an apprentice.

nest
PRO

Become a Nest Pro and start installing the award-winning products that customers love.

As a Nest Pro, you'll be installing innovative products you're proud to stand behind. And Nest will be standing behind you, with professional pricing, exclusive training, live VIP support, and referrals to help your business grow. **Find out more at nest.com/eu/pro**

Powerstar makes a splash in Teesside

Powerstar, the market-leading energy storage and voltage optimisation brand, has saved a leisure facility in Teesside over 10% in annual electricity consumption after installing a Powerstar LITE voltage optimisation system.

Following on from the success of the Powerstar installation at the Billingham Forum, Splash Stockton is the latest project in the company's contract to deliver voltage optimisation systems across the Tees Active Ltd. portfolio.

Established in 2004, Tees Active Ltd. is a charitable social enterprise that specialises in the management of facilities and projects with the aim of raising levels of physical activity within the community. It welcomes almost two million visitors a year to its facilities and employs 219 staff.

Splash Stockton operates seven days a week, offering a range of equipment and activities, including a swimming pool, Activ8 gym, a large sports hall and food and drinks facilities. Due to increased demand and subsequent development of the facility, Splash Stockton requires a significant amount of electricity.

In view of the facility's refurbishment and extended opening hours, Powerstar identified the site as an ideal candidate for voltage optimisation technology as it would provide minimal disruption to operations, alongside a short payback period.

After a full site analysis by Powerstar, it was confirmed that the site suffered from over voltage, preventing the majority of equipment from operating at optimum efficiency.

To reduce electricity consumption, energy costs and CO2 emissions, Powerstar installed its 250kVA Powerstar LITE system, with a fixed 20V reduction in supply.

300 employees move to the new business facility at Central Park, Lenton Lane Industrial Park

Siemens has opened its new Nottingham offices at Central Park, Lenton Lane Industrial Park. The move of 300 employees to an upgraded 31,000 sq ft building represents the biggest business letting in Nottingham in 18 months, and was officially opened by local MP Lilian Greenwood MP.

The new offices will be home to Siemens Managed Services, an independent provider of a comprehensive range of metering services at national transmission level, as well as for commercial, industrial and domestic for energy and water use.

The company was formed in 1997 and has since grown to become one of the largest independent providers of utility services in the UK and the global centre of competence for the Siemens digital grid business.

Lilian Greenwood MP for Nottingham South, who attended the official launch of Siemens new Nottingham home, said "It's fantastic to see Siemens make a long term commitment to Nottingham. This investment represents a vote of confidence in our city and its ability to be at the heart of a balanced economy. Siemens employs over 300 people and each of them makes a strong contribution to our local economy, we should use this investment to attract more technology companies to our city centre which is a great place to do business".

The move is set to bring new efficiencies and provide a modern 21st Century working environment for all employees, customers and business partners.

It secures the long term prosperity of the Siemens business in Nottingham that is investing in people and infrastructure to support the transformation to a digital future connected with smart metering.

The new location also has stronger green transport links, reducing travel time for employees as well as increasing access to public transport.

Kevin Tutton, head of managed services at Siemens, added "The new site provides a cost effective state of the art facility, creating an environment that encourages innovation and collaboration in support of our customers, employees and partners. Ultimately, this is a vote of confidence and commitment from Siemens in Nottingham."

Swale Heating's new Energy Academy joins LCL family

Logic Certification (LCL) is delighted to welcome the brand new Energy Academy to the LCL family. Swale Heating, based in Sittingbourne, Kent, is one of the UK's leading independently-owned heating companies and has invested £100,000 in a new training facility. The state of the art centre offers in-house training for Swale Heating staff as well as a comprehensive range of courses for plumbers, installers, electricians and gas engineers outside the company.

Qualifications on offer include natural gas, LPG, oil, solid fuel, biomass, renewable energy, unvented hot water, under-floor heating, plumbing and electrics. Learners can take an advanced wiring course for heating systems and NICIEC training will also be available.

Mark Krull, director at Logic Certification, said: "We are delighted to bring the Swale Heating Energy Academy on board as an LCL approved centre.

"It offers state-of-the-art facilities for trainees, allowing our qualifications to be delivered to the highest possible standard."

Swale Heating's fully qualified trainers and assessors will work in partnership with Logic Certification and industry-leading independent assessors and verifiers; autonomous to Swale's Heating business; to offer the very best training and qualifications in a wide range of subjects.

The Academy has been set up to offer qualifications and training for learners of all levels.

There will be Managed Learning Programme (MLP) courses for new entrants and transition training designed for existing tradespeople looking to up-skill. As well as this, Swale Heating will be offering a range of non-technical qualifications for industry operatives.

LUCECO
LIGHTING SOLUTIONS

Ceres

The perfect LED High Bay replacement to HID luminaires for many industrial applications.

- **50,000 & 70,000 hours** life options
- Available with on/off presence detection & dimmable variants
- **Compact** optic using latest lens technology
- Outstanding luminaire performance with an efficacy of up to **140Llm/W**
- Computer designed aluminium housing with vortex cooling

Long life LED luminaires

Contact Luceco on **(01952) 238 100 | www.luceco.com**

LED

GOSSAGE

Debauching the currency, Part 2

In my December column, I wrote about the exponential growth in trading cryptocurrencies like Bitcoin. Not so much regarding the value per unit. But instead concentrating upon the enormous amount of electricity that each purchase or sale transaction requires.

I have been challenged that my concern about this profligacy - which has subsequently been increasingly repeated elsewhere - may be over-stated. Not so.

Let us try some simple comparisons. You wish to buy foreign currency. You visit a money exchange outlet. A calculation is made regarding exchange rates. You hand over paper currency. You receive the foreign notes. That electronic calculation requires at most the equivalent of just under 1-watt of electricity

If you do the same transaction using plastic currency, the electricity consumption increases. A credit card transaction uses about 7 watt-hours per transaction. So, about eight times more energy than the cash transaction. Now, get ready for it.

A single Bitcoin transaction is estimated to use 215,000 watt-hours per transaction. That is 215kWh, so about the equivalent of 225,000 cash transactions. Easy to see why the annual Bitcoin-related electricity consumption is already surpassing that of a developed country like Switzerland or the Netherlands, and, by some estimates, is on track to exceed that of the entire US by mid 2019.

If we take a median figure for external costs from electricity consumption of 6 pence per kWh, we are assuming a freerider ecological impact from Bitcoin transactions already costing well over £5bn each year. This is a conservative number, with the true number potentially much higher. And because Bitcoin transactions only take place online, under the Paris Agreement not attributable to any specific country.

So, what on earth are we doing? We are destroying the environment in order to subsidise an untraceable currency that enables and encourages tax evasion and other illicit behaviours.

My coal is spent

Ushering in the start of 2018 with good news is the revelation that the UK's low-carbon sources generated more electricity than fossil fuels during 2017. This was the first year ever when they outpaced coal and gas-fired electricity.

Coal plunged to new lows, down another 25% since 2016 and supplying just 7% of the electricity generated in the UK – less than half the amount provided by wind power alone. The amount of electricity generated by coal has dropped 84% in just five years, culminating in the first days since 1882 without coal power in the UK.

The shift to low-carbon sources of power is helping the UK cut its greenhouse gas emissions. In fact, the demise of coal generation alone accounts for around 80% of the fall in overall UK CO2 output over the past five years. To meet its legally binding climate goals, however, the UK will still need to make cuts in all sectors – particularly transport and buildings, where progress has been limited and policy is threadbare.

Coal power stations that do not fit abatement technologies to limit emissions to 450gCO2/kWh will have to close on 1 October 2025.

Unabated coal plant operators will therefore be unable to bid into the capacity market auctions for delivery in winter 2025. One important caveat: the emissions intensity limits will apply only to plant sized over 300MW that burn solid fossil fuels. If market economics and other emissions directives have not already pushed them off the system.

A right to be forgotten

I have written repeatedly about my scepticism regarding the £14bn Smart Meter programme I remain unconvinced that those spending what is electricity customers' money so freely, have really thought through all the potential consequences.

For instance, take the detailed consumption data concerning each smart-metered premises, getting their hands upon which being of the main reasons why the Big Six energy companies have been so enthusiastic.

There is now a new "right to be forgotten". While this is intended to allow people to have material removed from social networks – perhaps because of embarrassment – or to erase an unwanted past association, it applies to anyone who has had data collected on them even with their full consent.

A domestic smart energy meter is collecting personal data. If this is processed by a third party for the utility company, that third party must have a clear contract that covers all aspects of the use, protection, retention and disposal of the data. If the processor falls short, the utility will be liable, just as if it had fallen short.

If the meter data collector suffers a breach involving personal information, there are strict rules for disclosure – not just to the utility firm, but also to customers whose personal data may have been compromised. And the deadline is short: in many cases 72 hours.

If this programme installing 53 million new meters is ever completed, I can easily see that it will likely be providing an enormous increase in work for m'learned friends in the Courts, suing the Big Six energy companies.

Humpty Dumpty sat on a

Donald Trump has been granted permission to build a wall. Not in Mexico, but on the west coast of Ireland.

The US President had sought approval for a lengthy sea barrier to protect his golf course at Doonbeg in County Clare from Atlantic storms and coastal erosion, with the original application citing global warming and rising seas as a justification. Trump Hotels Inc estimates that between 15 and 20 metres of dune facing the edge of the golf course has eroded in the last 15 years.

Environmental groups have raised numerous objections, claiming the wall could damage protected wildlife habitats in the region. And many are quick to highlight the irony of a President, who denies climate change exists and who is trying to pull his country out of the Paris Agreement, building a wall in an attempt to manage the impact.

The infrastructure designed for your network edge.

The small solution that gives you a big edge...
Micro data centre solutions for traditional & converged IT.

Local IT equipment gives you full control over your data while decreasing bandwidth bottlenecks and latency. Micro data centres from Schneider Electic™ are standardised and secure infrastructure solutions - quick to deploy and easy to manage. They're the cost-effective way to create the computing environment you need for traditional or converged IT applications.

Schneider Electric™ has the infrastructure designed for your network edge.

schneider-electric.co.uk To learn more call us on: **0800 2799 254**

Life Is On Schneider Electric

We are pleased to announce

Electrical Review EXCELLENCE AWARDS 2018

In partnership with:

riello ups

An evening to celebrate outstanding achievements, innovation and collaboration

The Awards will recognise projects that embrace the latest in electrical engineering, display forward-thinking design and implementation, and champion the highest environmental, safety and energy efficiency standards.

Entries open until **23 February 2018**

Celebrating outstanding achievements, innovation and collaboration

Entries open until **23 February 2018**
visit **www.electricalreview.co.uk/awards**

Winners will be announced on 24 May 2018, during the Awards dinner at The Dorchester Hotel on London's Park Lane.

Entries will be assessed by our Judging Panel of industry experts including:

Prof Ian F Bitterlin
CEng PhD BSc(Hons) BA DipDesInn FIET MCIBSE MBCS, Consulting Engineer & Visiting Professor, University of Leeds

Peter Hunt
Chief Operating Officer, Lighting Industry Association Ltd; Chief Executive, Lumicom Ltd; President, Lighting Europe

Steve Martin
Director of Technical, Electrical Contractors' Association

Steve Hone
CEO and Co-founder, The Data Centre Alliance

Andrew Evans
CEng MInstMC MIET, Technical Director, GAMBICA

Elinore Mackay
Editor, Electrical Review

We invite contractors, sub-contractors, vendors, manufacturers, consultants and project owners to submit their entries for the following Awards:

- POWER – Power Generation, Transmission and Distribution
- POWER – Transformers
- POWER – Switchgear & Sub stations
- DATA CENTRE DESIGN & BUILD – Panel building & Enclosures
- DATA CENTRE DESIGN & BUILD – Climate Control
- DATA CENTRE DESIGN & BUILD – UPS / Standby Power
- LIGHTING – Emergency Lighting
- LIGHTING – Smart
- BUILDING SERVICES
- CABLE MANAGEMENT
- FIRE SAFETY & SECURITY
- TEST & MEASUREMENT
- ENERGY EFFICIENCY
- INNOVATION

ENTER YOUR PROJECT
before 23 February 2018!

BECOME A SPONSOR

The Awards offer an outstanding platform for businesses operating in the electrical industry to join Electrical Review's mission to reward excellence, innovation and collaboration. Contact us today so we can tell you more and help your business take full advantage of the Awards.

Please call Sunny or Amanda on **+44 (0) 207 933 8970** or email **sunnyn@sjpbusinessmedia.com** **amanda@electricalreview.com**

visit **www.electricalreview.co.uk/awards**

3 network tests for troubleshooting VoIP systems

Despite the rise in Voice over Internet Protocol (VoIP) telephone systems, many technicians and installers are not aware of how to troubleshoot network performance issues to ensure VoIP quality, says IDEAL Networks

Although VoIP can easily integrate into virtually any LAN (Local Area Network), issues with network performance can occur and affect the user experience," says Tim Widdershoven, global marketing Manager for IDEAL Networks. "Users can usually accommodate small amounts of crackle or popping on the line but anything more is disruptive to the conversation and impacts the quality of service (QoS)."

To troubleshoot these issues effectively and select the right test equipment, installers and technicians must understand how Ethernet networks handle VoIP traffic differently compared to standard data or video. Network testers are available to look at the three most critical factors in measuring network performance for optimal VoIP quality: packet loss, delay, and jitter.

PACKET LOSS

Packet loss is the percentage of the total packets that are lost, or discarded, by the network. Network switches and routers discard packets when the incoming buffer is full due to congestion on the outbound side, which prevents packets from being forwarded to the next "hop" on their way to the destination. Acceptable packet loss depends on many factors, although 3 per cent or less is generally considered good.

A transmission tester, such as the IDEAL Networks SignalTEKTM NT, sends a stream of packets between two locations and measures the loss rate. When measuring VoIP, it is important to use a VoIP pre-set, or manually configure the packet size to 64-byte, to accurately demonstrate network performance.

DELAY

Delay is the time required for a packet to cross the network. Factors that increase delay are the number of switches and routers between the users on the call. LAN and WAN congestion leads to routers searching for alternate paths between locations often resulting in additional hops. Each hop adds delay. An acceptable delay time for VoIP is 200ms (milliseconds) or less.

A simple PING test using an IDEAL Networks NaviTEK NT troubleshooting tester, can measure delay showing the minimum, maximum, and average delay. However, default PING settings should be changed for packet size, count, and pause (time between tests). Optimal settings are 64-byte packet size, 1,000 packets, 10ms interval. The result is a 10 second test with 100 packets/second.

JITTER

Jitter is the difference in delay time between packets. The less jitter, the more consistent the stream of packets is, and the smoother speech sounds. Most VoIP equipment incorporates a jitter buffer to accommodate some amount of jitter. However, less jitter always results in better sound quality. Jitter of 30ms or less between packets is best. Voice quality falls off dramatically as jitter exceeds 35ms.

Jitter can be measured with dedicated network testers, such as IDEAL Networks LanXPLORER Pro. Often computers and mobile devices introduce too much error to measure jitter accurately.

These three factors all play a role in the rated quality of a VoIP conversation. Each is affected by different network conditions, so it's vital that network engineers troubleshooting VoIP systems have the right tools to evaluate network conditions and help identify sources of poor VoIP quality.

Emergency Lighting Workshops

Do you and your staff have the latest knowledge on all the legislation, compliance, best practice and standards changes?

For all things emergency lighting related, Mackwell will get you up to speed and provide you with the knowledge you need to deliver and maintain on-going compliance in this safety critical application.

mackwell®
LIGHT THE WAY

for more information contact mackwell...

+44 (0) 1922 458 255
www.mackwell.com

Converter technology ensures an exact colour location

As the luminous efficacy of LED's has continued to improve they are now attractive propositions for all aspects of lighting says Tridonic's Dr. Martin Pfeiler-Deutschmann, head of product realisation, Competence Center Light Sources. For semiconductor light sources to be widely accepted the quality of their light and their colour tolerance must be right, not to mention the price.

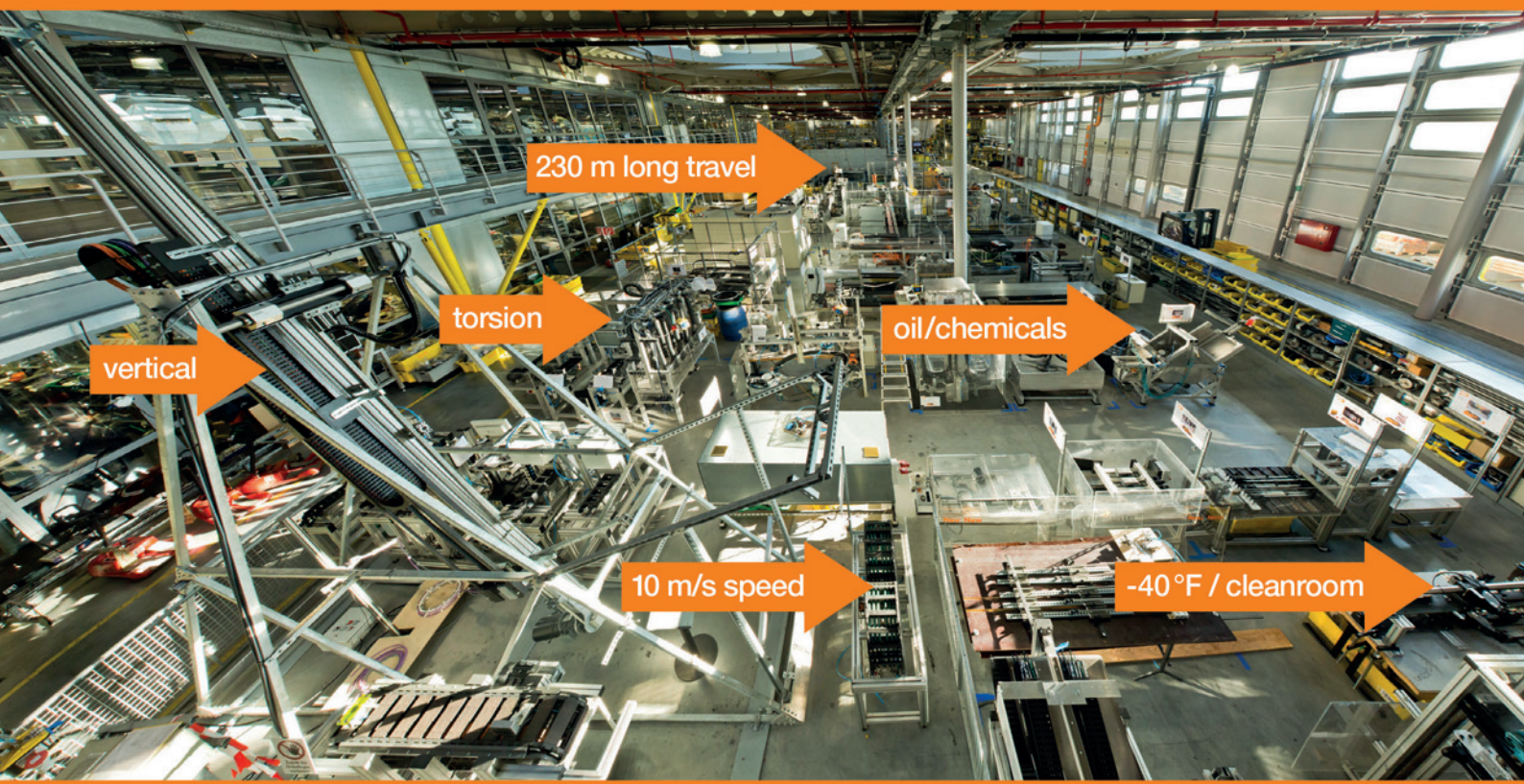
White light cannot be created directly and colour mixing is always involved, for example from a combination of red, blue and green LED chips (RGB) or from a combination of blue light and a conversion phosphor. White light for general illumination is now mostly provided by wavelength conversion, in other words by a blue LED chip and a conversion phosphor. Since the energy of the light is inversely proportional to the wavelength, short-wave blue light has greater energy than, say, yellow light with its longer wavelength. When suitable phosphors are excited by blue LED chips some of the high-energy blue light is absorbed by the phosphor and converted into lower-energy radiation in the form, for example, of yellow or red light. The residual blue light and the generated yellow/green and red light produce white light by additive mixing. The conversion material can be either applied directly on a blue emitting LED chip or it can be incorporated (dispersed) in the silicone encapsulation for the LED.

Small differences in the colour and brightness of the white light occur from one LED to the next, even if the LEDs come from the same batch. 'Binning' is the name given to the proven method of reducing these colour and brightness differences. It involves placing the LEDs in different classes depending on their brightness, colour location or forward voltage. The most important of these is classification by colour location because the human eye is extremely sensitive to differences in colour, while differences in brightness are much harder to detect. The more detailed the classification, the more time and effort required for binning and therefore the higher the price of the LEDs. Binning can be dispensed with and this compensates for the fine differences step by step via the composition of the converter material and its thickness. This process saves on resources and produces light sources with identical properties. ▶

Largest test lab for continuous-flex cables

#1

... number one in moving cables



Widest selection. Unmatched Testing. 36 Month Guarantee.

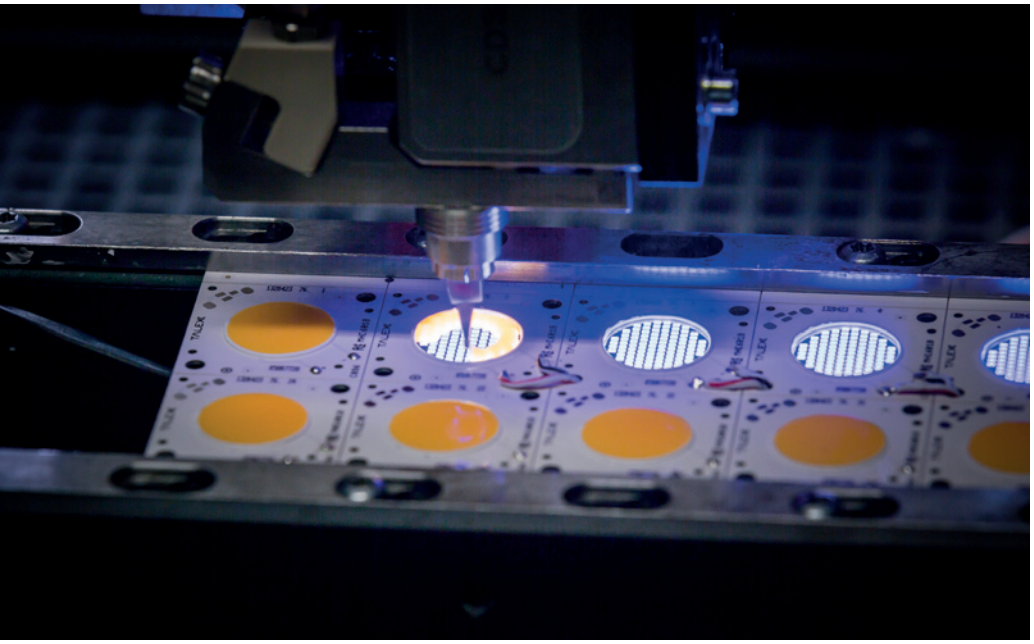
Guarantee igus chainflex 36 month guarantee

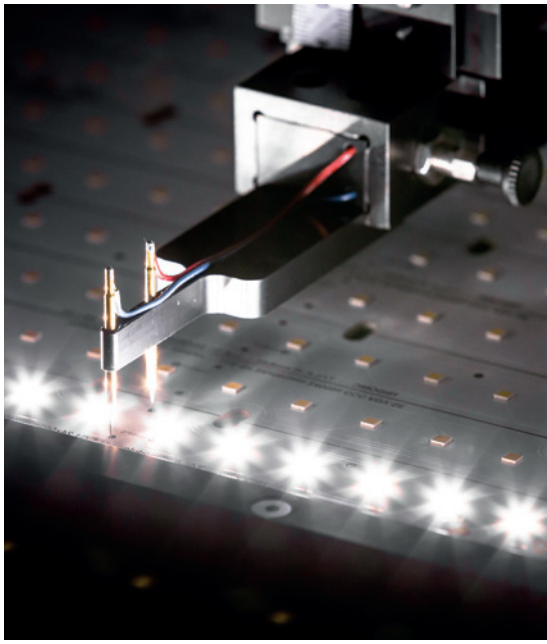
Reduce downtime with chainflex®
- Developed & tested in the 2750 m² lab
- 600 tests run in parallel
- 1.4 million electrical measurements/year
- 2 billion test cycles/year

Shop now: www.igus.co.uk/chainflexshop
Free samples available: www.igus.co.uk/cf-sample

igus®
plastics for longer life®

sales@igus.co.uk
Tel 01604 677240





Blue LED chips with wavelengths between 447.5 and 465 nm are the starting material for Chip-on-Board (CoB) LEDs. First, the raw chips are checked for their most important material properties – dominant wavelength, brightness and forward voltage – and typically assigned to 2.5 nm wavelength classes. In special cases, for example if the light source is based on a single LED chip, they may be placed in classes as small as 0.5 nm. Any differences in the properties within these wavelength classes are compensated by special processes when the converter material is applied. For each of these wavelengths classes there are precisely matched recipes for the converter material.

To ensure compliance with the desired colour tolerances the tolerance range during production is set within tighter limits than required by the product specification. If the colour tolerance of the LEDs is ultimately to comply with MacAdam 3 then MacAdam 2.5 is specified for production. The process is fully scalable so it is possible to achieve colour tolerances that correspond to MacAdam 2 or even MacAdam 1. Such low tolerances are needed for example for displaying exhibits in their true colours in museums, art galleries and so on. But other areas such as the healthcare sector also demand narrow colour tolerances or compliance with specific colour rendering properties. For example, red tones have to be rendered as naturally as possible so that inadequate oxygen saturation in the blood can be visually detected as a change in skin colour.

Although the reeled goods are supplied in specific bins, even bins have tolerance ranges with regard to the properties of the SMD LEDs. It is impossible to say in advance whether the supplied products are uniformly distributed across the bin or are close to the tolerance limits, and it is impossible to exert any control over this during the production process. This restricts the achievability of the theoretically possible colour accuracy compared to CoB solutions.

Both SMD (surface-mount device) and CoB (chip on board) LED types deliver homogeneous white reproducible light sources, classified not only by their colour temperature but also precisely by their colour location and MacAdam colour tolerances. There are no discernible differences in colour but luminaire manufacturers benefit from considerable logistical and application-related advantages.

> **SMD LEDs are purchased as reeled goods**

SMD LEDs are purchased as reeled goods in particular bins and simply have to be soldered to the board and a special matrix defines how the LEDs can be combined to achieve the desired colour tolerances. In theory, the achievable colour tolerances correspond to those of the CoB process. In practice, however, the system is not fully scalable, unlike the CoB process. Although the reeled goods are supplied in specific bins, even bins have tolerance ranges with regard to the properties of the SMD LEDs. It is impossible to say in advance whether the supplied products are uniformly distributed across the bin or are close to the tolerance limits, and it is impossible to exert any control over this during the production process. This restricts the achievability of the theoretically possible colour accuracy compared to CoB solutions.

TUNABLE WHITE

For tunable white the required small colour tolerances are achieved by means of wavelength conversion using 2-channel technology (cold white/warm white) and 3-channel technology (monochromatic red and blue plus green phosphor) for CoB LEDs. Each channel identifies a point in the CIE colour triangle. The 2-channel version therefore has two points (warm white and cold white). With the 2-channel version different components of the two channels can be combined to produce all the colours/colour locations which lie precisely on the connecting line between the two points in the CIE colour space.

With one colour-converted point in the green range, one in the monochromatic blue range (470 nm) and one in the red range (610 nm) the 3-channel version covers an entire colour space so that all the colours/colour locations of this colour space are possible. With the aid of an intelligent control system the light point can be moved precisely along the Planckian curve, creating step less controllable (tunable) white in a colour temperature range from 2,700 K to 6,500 K. The luminous flux can be kept constant across the entire control range. Colour tolerances are maintained within narrow limits across the entire dimming range. ER

VENTILUX

THE EMERGENCY LIGHTING SPECIALISTS

Ventilux Group designs, manufactures and offers an extensive range of safety system products and services, including Emergency Lighting, Central Battery Systems, Luminaire Conversion Equipment, Emergency Lighting Commissioning, Service and Maintenance. Ventilux is one of the largest Independent Emergency Lighting Manufacturers in Europe & the Middle East.

WHAT CAN VENTILUX OFFER YOU?

- "1 in 1000" Luminaire Failure Rate
- Efficient Project Lighting Design Team
- Experienced Sales & Service Team

Neil Whittingham
UK Major Projects Engineer
neil@ventilux.co.uk
Phone: 07774 741 828

Emma Jevons
North West Sales
emma@ventilux.co.uk
Phone: 07771 737 984

Kris Gray
North East Sales
kris@ventilux.co.uk
Phone: 07712 325 838

Melvin Kurankye
London Sales
melvin@ventilux.co.uk
Phone: 07717 835 998

Thomas Farmilo
Scotland Sales
thomas@ventilux.co.uk
Phone: 07715 213 989

Tyrone Campbell
Northern Ireland Sales
tyrone@ventilux.ie
Phone: 07715 213 991

ADDRESS
ARBOUR COURT,
ARBOUR LANE,
KNOWSLEY, LIVERPOOL
L33 7XE

PHONE
+44 (0) 151-5464155

WEBSITE
WWW.VENTILUX.COM

VENTILUX EMERGENCY LIGHTING SPECIALISTS

DALI RANGE WITH AUTO TEST FUNCTIONALITY

ATLANTIC LED
£57.75
- Edge Lit Exit IP20
- Wall/Ceiling Mounted
- 4 Panel Kit (Supplied)
- Recessed kit on request

ATLANTIC SP LED
£57.75
- Edge Lit Exit IP20
- Wall/Ceiling Mounted
- 4 Panel Kit (Supplied)
- Recessed kit on request

ATLANTIC EB LED
£57.75
- Edge Lit Exit Box IP20
- Wall Mounted
- 4 Panel Kit (Supplied)

VISOR 120 DS DALI
£71.00
- Double Sided LED Exit
- IP65 Rated
- Internal & External use

VISOR 120 DALI
£65.75
- LED Bulkhead
- IP65 Rated
- Internal & External use
- 120 Lumen Output

DELTA LED
£57.50
- 3 Watt Downlighter
- 150 Lumens IP20
- Open Plan & Escape Route Appilcation

ETS LED DALI
£42.00
- Emergency Twinspot
- IP65 Rated
- Internal & External use

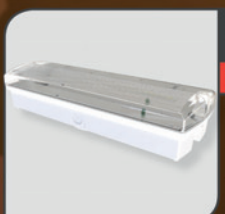
VELA LED
£15.75
- Slimline Exit Sign IP20
- Built in Downlighter
- 4 Panel Kit (Supplied)

FUSION LED
£25.75
- Multi-Mounting Exit IP20
- 4 Panel Kit (Supplied)

ECONOMY RANGE

HORIZON LED
£18.50
- Double Sided Hanging Exit
- IP20 Rated

VISOR DS LED EXIT
£18.50
- Doubled Sided Exit
- IP65 Rated
- Internal & External use



VISOR LED IP65
£13.75
- LED Bulkhead
- IP65 Rated
- 70 Lumen Output

EVOLUX 5W LED
£26.75
- 5 Watt Downlighter
- Open Plan & Escape Route Appilcation

EVOLUX 3W LED
£16.00
- 3 Watt Downlighter
- Open Plan & Escape Route Appilcation

ETS LED
£34.50
- Emergency Twinspot
- IP65 Rated
- Internal & External use

"PRICES EXCLUDE VAT"

Mobile solutions

Gone are the days where an engineer would monitor one, or a small number of machines. Today, maintenance and service technicians are constantly on the move, monitoring multiple machines and potentially, multiple facilities. Here, Lee Sullivan, regional manager at industrial software specialist COPA-DATA UK, explains how engineers can monitor machinery performance on the move

MOBILE MONITORING AND ALERTS

Traditionally, it would have been impossible to monitor the performance of equipment without positioning a technician beside every machine in a plant. However, modern automation software makes it possible to visualise machine performance and gain an oversight of the entire factory floor. That said, today's production engineers want to monitor their machine performance at all times — inside and outside of the factory walls.

Using mobile monitoring solutions, every machine can be tracked and monitored and the relevant maintenance team, or individual technician, can have constant access to data, regardless of where they are located.

The ability to remotley monitor machine performance can identify opportunities to improve efficiencies and production. However, it is also vital for technicians and engineers to be able to react quickly to unexpected issues and minimise any unplanned downtime if a machine were to break down or show any signs of failure.

OPERATIONAL AWARENESS

Maintaining awareness of how a machine is performing and also its health is important to modern day manufacturing plants that want to improve their efficiency and drive down costs. Meeting production deadlines and being more efficient in production ensures customer satisfaction. Using mobile solutions that constantly monitor machinery against your production schedule and KPI's, manufactuing teams will be aware of progress and potential production delays will be highlighted in real-time.

This production insight also widens the operational awareness across teams and departments. For instance, quality control teams are often detached from manufacturing operations and are only made aware of production issues at the end of the process. By enabling key members of this team to gain mobile access to production data, all departments will be kept up-to-date from the start, resulting in less waste and more control.

LEAN MANUFACTURING AND PREDICTIVE MAINTENANCE

Unexpected downtime can cost millions in lost revenue. In fact, for the automotive industry, a break in production is estimated to cost $22,000 per minute. It is impossible to prevent all incidences of unexpected downtime. However, by opening up mobile monitoring solutions, with real-time production data, to the entire team, the time it takes to identify performance issues and fix the problem, is reduced.

The software can remotley monitor the essential elements of the value stream and feed this data directly to the mobile of an engineer. The system can then provide alerts should any part of the facility show signs of effecting the OEE. An example of this would be by predicting the required maintenance of production equipment, this way unplanned downtime can be avoided.

COPA-DATA's zenon, for example, provides emergency alerts that are sent by text message or email, ensuring that the right information gets to the right person, as soon as possible. Hierarchical alerts also mean that if an alert is sent out and not responded to using the required code, the alert is escalated to the next person defined in the communication chain. This way, issues can't go unnoticed.

The range of zenon mobile solutions modules can be added as a stand-alone client, a web client or a mobile phone viewer, at any time, even after the initial installation of zenon. The mobile phone viewer opens up remote monitoring to those who need to know the details of machinery status and productivity levels at all times.

THE FUTURE

Remote monitoring and alert systems are only the beginning of what we should expect from the future of a SMART factory with respects to monitoring and management. Streamlining communication between teams, individuals and even between machines and maintenance technicians is proving essential to supporting machine ergonomics and ultimatley, efficient factory operations.

Technicians no longer need to be positioned directly beside their designated machine to understand exactly how their machinery is performing. Using mobile solutions, maintenance teams will never be left in the dark. ER

Electrical SafetyUK

Consultancy | Training | Assessment

Accredited & Bespoke Training Including:

Safety Pass Alliance
City & Guilds
IOSH
Energy & Utility Skills

0800 652 1124 info@elecsafety.co.uk www.elecsafety.co.uk

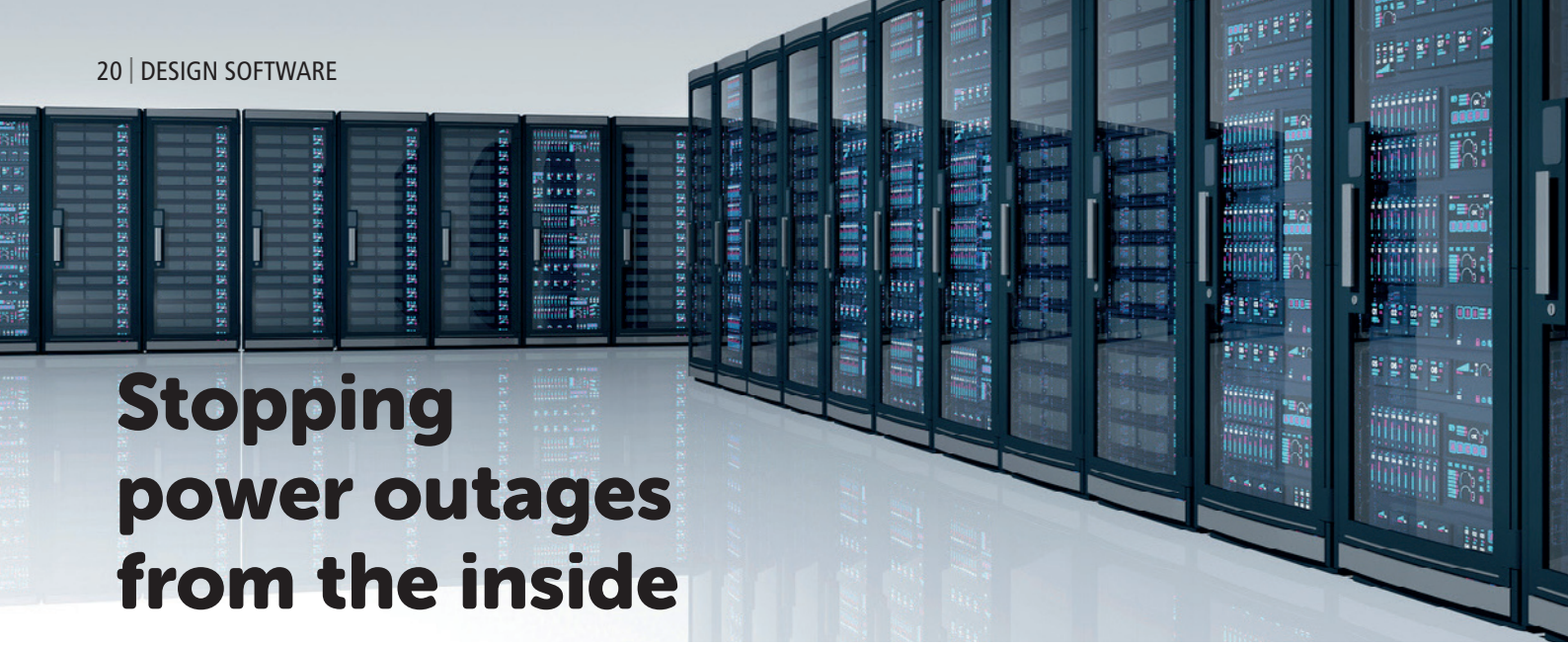
FREE Electrical Safety Health Check

Achieving compliance with legislation such as the Electricity at Work Regulations 1989 can be a complex and challenging task. ESUK offer a 90 minute FREE desktop audit to discuss & review areas of compliance & highlight issues for attention.

What is covered by the Audit?

- The structure and activities of your business
- The electrical work undertaken by your business
- How you manage electrical work
- How you maintain your systems
- The competency of your staff and contractors
- Your electrical/mechanical policies and procedures

Following the visit our engineering consultant will provide you with a comprehensive report and an action plan enabling you to priorities the steps you need to take to achieve full compliance.



Stopping power outages from the inside

Data centre power outages are becoming a mainstay of industry and national press. Last year an outage grounded BA's planes, while UKFast suffered from downtime, and Global Switch was struck not once, but twice in the space of a few weeks.

Each of these disasters brought these companies to their knees – some longer than others – as business functions ceased, impacting revenue. But it's not just this short term impact that companies should be worried about, the longer term can be just as harmful. Headlines cause reputational damage and can hinder revenue for months, if not years.

However, power outages like these can be avoided with some care and planning.

With a proactive approach to power chain integrity, organisations can look to minimise the chances of suffering a power outage meaning they remain functional, but more importantly, profitable.

Robert Neave, Co-founder, Chief Technology Officer and Vice President of Product Management for Nlyte Software, the leading data centre infrastructure management (DCIM) solution provider, highlights what must be taken into consideration for organisations looking to mitigate power outage risks.

REAL TIME MONITORING

Organisations must have real time monitoring over what is going through their data centre's power chain at any one time. This is so they can get a reading of what energy is being used by which device – and where.

Organisations must ask themselves, "Do we have the capability to look at all the information, all the infrastructure components in the facility and see the entire systems in one place via a single pane-of-glass view?"

If the answer is no, then they should look into gaining a holistic view that brings real-time monitoring and alarming that enables data centre operators the ability to mitigate risks, and make changes to avoid disaster.

FULL TRANSPARENCY

It is absolutely crucial for organisations to document their power chain all the way from where the power enters, through to the UPSs, PDUs and out to all pieces of rack-mounted equipment. Having this information means they can understand the potential impact of an outage should a certain piece of equipment fail or is taken offline.

AVOIDING POWER OVERLOAD

To ensure that a data centre is being supplied with the right amount of power and that it is not being overloaded, IT personnel and facility managers must work together and share information. This ensures all wider team members can assess what hardware is installed, what is being added or taken away and how much power each component needs. It is this information that is going to stop a component overloading and collapsing the system.

Documenting this procedure is extremely beneficial as it will help to make sure all information is shared consistently. Then everyone can look back on what's been done and improve on procedures, to avoid future disruptions.

SIMULATING FOR POWER FAILURES

Having the ability to perform power failure simulations by switching devices off – without affecting the production environment – is critical, as it allows organisations to have a well thought-out action plan to recover services.

Time and time again data centre operators have assumed that their power chain and back-up systems are fool proof and have ignored a failsafe test, only to find their themselves making headlines for all the wrong reasons.

Simulations can also help locate where redundancy is lacking and uncover single points of failure.

IDENTIFYING LONG TERM TRENDS

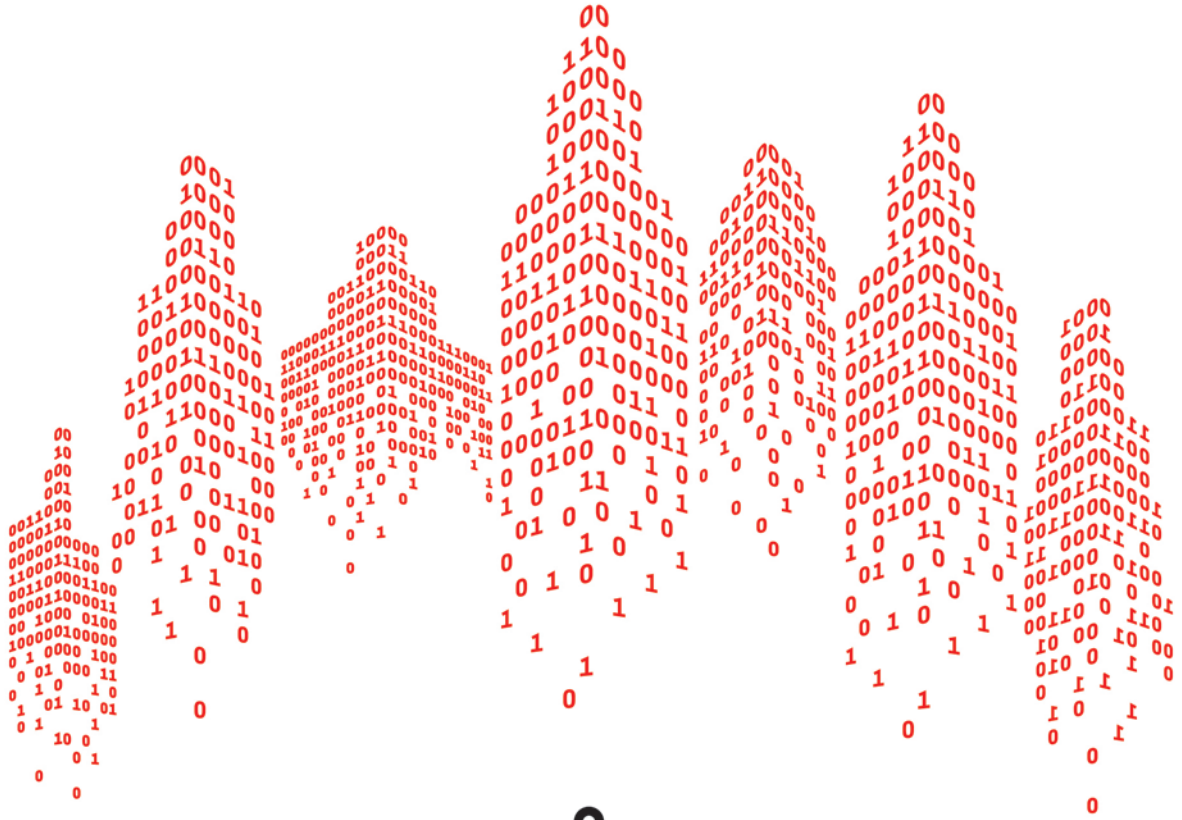
As critical as up-to-the-minute information is, it's also vital for organisations to analyse data centre performance over a long period of time to identify trends and patterns that can be pinned for long-term forecasting. This allows organisations to plan for change and fluctuations, balance loads as well as predict future capacity needs, plan workflows, and schedule services.

Having checked each of these boxes, organisations should also take time to investigate an industry proven power management option that can be realised with a DCIM solution.

A DCIM solution allows IT and facility personnel to operate the data centre at peak efficiency, while allowing stakeholders to improve procedures and identify vulnerabilities to keep the power chain safe.

For every organisation, a power outage is the worst-case scenario, and sadly, when they make the front page they'll know they've hit rock bottom. But, they'll also know it could have been avoided.

Reputation is important in this game. It's what keeps existing customers happy and new customers through the doors – ultimately boosting revenue. Therefore, having a solution that can keep an eye on the power chain, implement worst case scenario planning, and identify vulnerabilities, will separate the power players and the also-rans. ER



Professional Services at the core of your business

Call 0800 783 5697 or email hello@sudlows.com
to discover more about what we can do for you.
www.sudlows.com

SUDLOWS
working at the core of your business

CRITICAL INFRASTRUCTURES | ENTERPRISE SERVICES | FIBRE SPECIALISTS | ELECTRICAL SERVICES | BUILDING SERVICES | FACILITIES MANAGEMENT

Cabling and the invisible threat of non-compliance

The number of new homes in England has risen by 15% in the last year, according to recent numbers from the UK Government. Since 2010, some 1.1 million homes have been built while, in London, Sadiq Khan plans to put £250m towards buying and preparing land for new and affordable housing. And growth is not restricted to the residential sector. The London Bridge station rebuild has been a major focus in the capital and a glance at the skyline shows a city constantly developing. Jean-Sebastien Pelland, director at Eland Cables, explains

Powering all this and more is a busy construction industry and underpinning every project is a raft of materials. One crucial yet often overlooked aspect is the cabling. The quality of every construction depends on the quality of its cable – so building firms need ensure that the materials they source are truly fit for purpose.

Yes, there are British, European and international standards to define our cable construction and performance, as well as clear rules for compliance. Various industry bodies are charged with keeping standards up to date and fit for purpose, and the specifications they publish are stringent to safeguard safety and reliability. Our national standards body, the BSI (British Standards Institute) is part of CENELEC (the European Committee for Electrotechnical Standardisation) and is bound as a member to adopt its recommendations on top of our own regulations, promoting uniformity in standards across the EU. There is no sign Brexit will affect this.

In fact, it is an EU regulation that most recently added another construction compliance consideration for the cable world. The Construction Products Regulation (CPR) is a wide-ranging regulation that came into force in July 2017, classifying newly manufactured cables by their reaction to fire. Cables used for fixed installations must be tested for their flame characteristics and classified from A to F, with additional classifications for ,smoke emissions, flaming droplets, and acidity.

However, despite the regulation and testing, it's still estimated that up to 20% of all cables in circulation in the UK are either sub-standard, counterfeit or non-approved. For a commercial or industrial build, sub-standard cable can result in downtime, reliability issues and ballooning maintenance costs at best and major safety hazards at worst. For residential projects, sub-standard cable can be a dangerous time-bomb to families and a major business risk for developers. As such, non-compliance is a huge threat and would jeopardise the industry's ability to deliver.

In part, a big responsibility falls to the site developers and engineers to be vigilant and take a proactive stance. They play a key role in ensuring only compliant products make it onto site, ready for installation.

UP TO STANDARD

To the uninitiated, the sheer number of types of cable and the accompanying array of cable standards would be dazzling. There are cables for power, for data, for control and instrumentation; there are low voltage, medium voltage and high voltage cables; some cables are armoured or are fire-resistant; and they can be covered in a range of materials, commonly often PVC but also Low Smoke Zero Halogen (LSZH) compounds. For each cable or component material, there is a relevant standard (or series of standards) relating to all of these use-cases and characteristics, as well as specifications on how these should be tested for compliance.

One such piece of legislation applied across Europe is the RoHS Directive (the Restriction of Hazardous Substances). This is designed to prevent products with overly high levels of substances including lead, mercury and hexavalent chromium entering our supply chain; substances that can have a devastating impact on health. Any cables sold inside the EU need to be RoHS compliant and most are – however, it's essential to be absolutely certain.

Similarly – in addition to CPR – there are standards to determine the flame propagation (Vertical Flame Testing to BS ▶

Safe Isolation saves lives

Stay safe, prove dead and lock off with Martindale VIPDLOK kits

The simple solution to safe maintenance

- Essential for compliance with Electricity at Work Regulations for safe working
- Includes industry leading voltage indicator, proving unit, locking off devices and tags
- New VI-15000 Voltage Indicator, CATIV 1000V for all installations categories
- Safe because it's simple, no batteries, no ranges, no switches

Now available NEW VIPDLOKPRO

Get the right locking off device every time with Martindale PRO Kits

Available from your wholesaler and online

www.martindale-electric.co.uk

Call: 01923 441717 **email:** sales@martindale-electric.co.uk

MARTINDALE ELECTRIC

EN 60331-1-2) and gas emissions of cables under fire conditions (BS EN 60754). For instance, PVC emits chlorine gas when burnt which, when mixed with water from the atmosphere, turns into hydrochloric acid. It also produces a thick, light-obscuring smoke that can cause both damage to sensitive equipment and prove a serious risk to the safe evacuation of anyone in the building. It's why Low Smoke Zero Halogen sheath materials are now mandatory for cables in public buildings and public spaces in the UK. They emit low levels of toxic fumes, 60% less dense black smoke, and none of the acid gases.

REGULATING THE CABLE SUPPLY CHAIN

Cable manufacture is now limited in the UK. The bulk of manufacturers of British and European standard cables are based in countries such as Italy, Spain, Portugal and Turkey. There is nothing wrong with this in itself, but policing standards and regulations can be harder from afar.

Small changes to the raw materials going into the cable can have a huge bearing on the final product. For example, small reductions in the concentration of copper content in the conductor can have a major impact on the performance of the finished product; or the water used to mix with the pellets for the sheathing and insulation materials might have elevated levels of lead as a result of emissions from an upstream factory.

All this would be manageable enough though, if substandard, non-compliant cable could be comprehensively prevented from entering the UK supply chain. Sadly, that's not always enforced to the degree it should be, meaning in most cases it's not immediately apparent that you've bought and installed non-compliant cable. It might be years before problems come to light – as the recent revelation that 11 million metres of non-compliant low-voltage cable made it onto the UK market in 2010, with only seven million withdrawn. The low copper content of the cables makes them a significant potential fire risk with little way to tell where the cable in question ended up.

With the sheer scale of construction projects active and planned across the UK, cabling is entwined in home, community and business infrastructures. As such, it's vital to understand the effect that using a non-compliant cable can have on the long-term safety of a project.

HOLES IN THE NET

It's not enough to assume it is up to standard just because there hasn't been a reported problem with that product or supplier before. The good manufacturers conduct extensive tests on the cables before releasing them to market. In addition, third-party accreditation markings provide valuable reassurance by indicating the compliance of a tested length, but it is just against a sample rather than at a batch-by-batch or cable drum level. There remains too an issue with fraudulent cables available for sale – deliberate substandard copies made to look the part. It underlines the importance of testing throughout the cable supply chain, not just at the point of manufacture but at the point before delivery to the end user.

> **An idependent assessment will provide certainty**

WHAT'S A SITE DEVELOPER TO DO?

The killer mistake is to assume. Most projects source their cables from a supplier who can amalgamate the different cables and their sizes into one timely delivered order - going direct is not always an option.

So now the construction firm and its contractors are relying on the cable supplier to be certain that every batch from every manufacturer is compliant and as expected – that requires extensive testing, the likes of which are beyond the in-house capabilities of most suppliers. Yes, the end user should be able to assume that any cable they buy from a UK manufacturer, supplier or wholesaler is wholly compliant and fit-for-purpose but unfortunately that's not universally the case.

So what to do? Admittedly, no control system is ever perfect. However, there are a few steps site engineers and developers can take to minimise the risk of substandard or non-compliant cable:

LOOK INTO THE SUPPLIER'S SUPPLY CHAIN

This information shouldn't be hard to get from the supplier and is basic due diligence for any project. It's important they are tracking their products and – ideally – testing them with their own or third-party cable testing facilities. If this information isn't forthcoming, walk away.

CHECK FOR THE APPROPRIATE MARKINGS

Looking at the cable itself is a basic and easy check that is all too often overlooked. It's not fool proof – small changes, a testing mistake, or fraudulent behaviour might see a bad cable stamped with all the right things - but the print legend is the first indicator of whether the cable is what it should be. Similarly, does the label have the relevant information including CPR compliance details where appropriate?

CHECK FOR ACCREDITATIONS

High quality suppliers will proudly display their ISO, BSI and UKAS accreditations. If the supplier offering the best (cheapest) deal doesn't do the same, it's worth wondering why. In addition to these reputable industry accreditations there are also internationally-recognised marks such as the BSI RoHS Trusted Kitemark which pinpoint organisations who can assure quality and compliance.

If ever a site engineer suspects they might have sub-standard cable on their hands, they can have an accredited third party lab test it, or report it to the authorities to do so. An independent assessment into the quality and compliance of the cable will provide certainty one way or the other, but if it is a bad batch there's then the remedial action that needs to be taken, meaning prevention is always better than cure.

Construction underpins so much of our everyday lives, including our homes, communities, workplaces and transport systems. Cabling might not be the most visible or glossy side of all this but it is an integral part. It is woven throughout our entire ecosystem – so it's crucial to get it right.

What's important to remember is that having an established and successful industry doesn't automatically mean that its supply chain is always reliable and trustworthy. Instead, it is up to each firm to question suppliers and ensure the industry as a whole sticks to its own high standards and, above all, remains compliant. Figures according to the Approved Cable Initiative. ER

spec
Harnessing Power

Harnessing Power Worldwide

Over 2000 national high voltage (HV) connected sites under contract and an average growth of 100 sites per annum

- Take on the role of Authorised person for that site (if required)
- Provide 24 / 7 / 365 call out service
- Carry out a yearly substation visual inspection
- Free partial discharge check
- 24 hour call out number plate added to the substation
- Routine oil samples
- Intrusive maintenance on all switchgear under contract

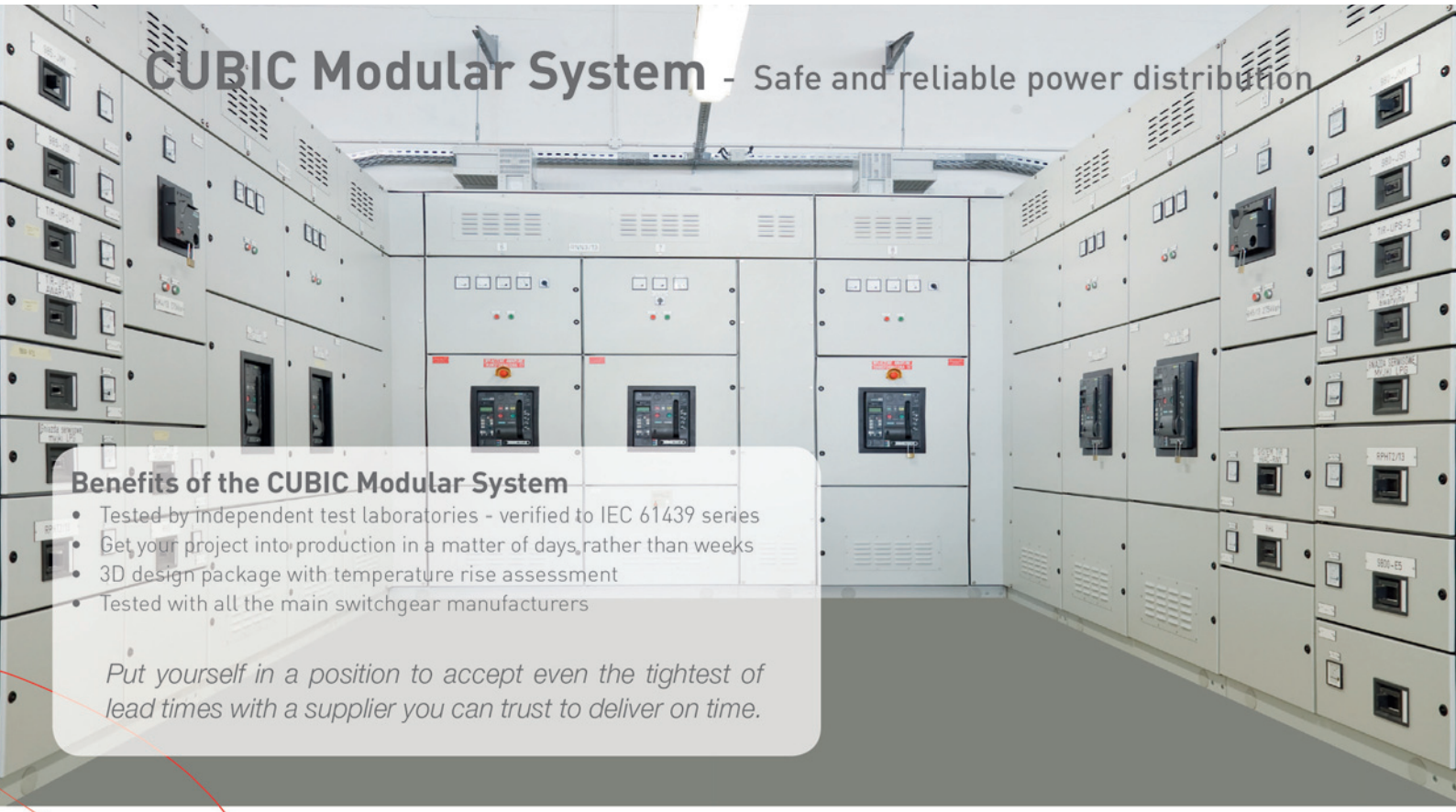
We can provide a complete installation service from HV switchgear and transformers to LV distribution circuits covering voltages up to 66kV on cables and 132kV on maintenance

- HV Switchgear and Transformers
- LV Switchgear and Feeder Pillars
- Full testing and commissioning
- HV and LV Cable jointing and terminations
- Generation and Associated Services
- Complete internal and external switch room installations
- Offshore and internationally

WE SUPPLY ALL MAJOR MANUFACTURERS EQUIPMENT AND OUR TEAMS ARE CONTINUALLY TRAINED AND KEPT UP TO DATE ON THE LATEST SITE INSTALLATION TECHNIQUES

power generation | offshore | manufacturing | retail & leisure | industry

www.spec-ltd.com | enquiries@spec-ltd.com | 01924 871 558



Benefits of the CUBIC Modular System

- Tested by independent test laboratories - verified to IEC 61439 series
- Get your project into production in a matter of days, rather than weeks
- 3D design package with temperature rise assessment
- Tested with all the main switchgear manufacturers

Put yourself in a position to accept even the tightest of lead times with a supplier you can trust to deliver on time.

CUBIC

CUBIC Modular Systems (U.K.) ltd.
Unit 1, Queensmead Place
Textilose Road, Trafford Park,
U.K. - Manchester, M17 1PH

Tel. +44 161 876 4742
E-mail: info@cubic-uk.co.uk
www.cubic.eu

Multi-functional testing device saves time and reduces costs for substation asset commissioning and maintenance

Multi-functional CPC 100 for substation testing

It goes without saying that the diagnostic testing of substation assets during commissioning and on-going maintenance is essential to ensure their reliable and safe operation. Considerable time and resources are invested to conduct all the necessary tests on assets, such as power and instrument transformers, grounding systems, circuit breakers, switchgear, rotating machines and cables.

REDUCING THE NUMBER OF TESTING DEVICES

The effort and expense of conducting the complete array of tests on these various assets is compounded by the fact that it has been common practice to use separate instruments for each type of test. This often results in the complicated and costly transport of several individual testing instruments to onsite locations. Most significantly, having to connect and configure a variety of instruments for each type of test also increases the time in which assets are not in productive operation.

A multi-functional test device designed to conduct most of the standard electrical tests can make commissioning and maintenance testing more efficient and cost effective.

SELECTING THE BEST SOLUTION

In selecting a multi-functional testing device, key considerations need to be made. For example, the system should be compact and lightweight for easy transport and handling. It should feature an expandable modular design that enables users to easily add accessories to meet both present and future test application requirements.

Ideally, the multi-functional testing device should be able to generate high currents and voltages on site for various off-line measurements. A high level of interference suppression should also be possible to ensure accurate readings in substations where high levels of electrical noise are present. Most importantly, despite its versatility, the multi-functional testing device should remain easy to use for on-site commissioning and maintenance testing based on IEC and IEEE standards.

THE FIRST OF ITS KIND

All of these considerations are what inspired OMICRON over 15 years ago to develop and launch its patented CPC 100 primary injection test system. It was then the first multi-functional testing solution of its kind and its continued popularity has made the CPC 100 the reference point in the industry for multi-functional substation asset testing.

Already more than 5,000 CPC 100 primary injection test systems are in use at utilities and industrial plants around the world for asset commissioning and maintenance. Current customers can attest to the fact that the CPC 100 dramatically reduces the costs for transport and training, and it greatly minimizes testing time.

CPC 100 application areas

ALL-IN-ONE SOLUTION

Several standard and advanced diagnostic tests can be performed with the CPC 100 on various electrical assets, including power transformers, current and voltage transformers, circuit breakers and switchgear, rotating machines, grounding systems, as well as cables and transmission lines.

The CPC 100 provides users with up to 800 A or 2 kV (2 kA or 12 kV with boosters) with up to 5 kVA over a frequency range of 15 Hz to 400 Hz or 400 A DC.

Add-on devices allow the CPC 100 to further expand its testing capabilities to perform specialized tests, such as power/dissipation factor, line and ground impedance measurements as well GIS testing. In addition, the CPC 100 also enables sampled values and merging unit testing in accordance with the IEC 61850-9-2 standard.

COMPACT AND LIGHTWEIGHT.

The CPC 100 weighs only 29 kilograms (64 lbs.) and it comes with a wheeled transport case. This makes it easy for one person to carry and handle the equipment during on-site testing. Thanks to its compact and lightweight design, it can be economically shipped in advance to measurement locations.

PORTABLE HV SOURCE

In addition to the diverse variety of electrical tests it performs, the CPC 100 can also be used as a convenient HV source to energize assets for off-line diagnostic testing, as for example during induced voltage testing for voltage withstand and partial discharge measurements. Thanks to its design, the CPC 100 can be easily transported and used in testing areas that are hard to access or have limited space. By comparison, traditional types of external HV sources used for off-line testing are often very large, cumbersome and expensive to transport.

VARIABLE TEST FREQUENCIES

To operate the CPC 100, users simply plug it into a standard electrical outlet, open up the front panel and turn on the power. The energy coming out of the power socket is converted electronically so that it is at a stable frequency. Variable test frequencies from 15 Hz to 400 Hz can be selected to ensure the effective suppression of mains-related interference. This enables users to obtain accurate measurement results even in noisy environments.

HIGH LEVEL OF SAFETY

To protect users and their electrical assets during high-voltage diagnostic testing, the CPC 100 is equipped with various safety mechanisms, including an automatic ground connection check, overload detection, multiple isolated outputs, a safety lock key, an acoustic signal to indicate measurements in progress, as well as an emergency switch-off button. These features ensure a safe testing environment, helping to prevent both personal injury and equipment damage.

FLEXIBLE OPERATION

The CPC 100 provides users with various ways to conduct on-site tests on substation assets, whether manually, directly from the instrument panel, or with a laptop PC or tablet using OMICRON's Primary Test ManagerTM (PTM) software. This powerful software tool enables users to have extended on-site testing capability at their fingertips, including guided test workflows, data management and automatic real-time assessment.

The CPC 100 can be easily controlled from a laptop or tablet

EASY DATA HANDLING AND REPORTING

All results are displayed as diagrams and tables in real time, and the PTM software also shows the progress of the measurements as well as the remaining tasks. An overview of the test results is given during the measurement and an instant "pass/fail" assessment of the test results is displayed based on specified limit values, such as those conforming to international standards. The software automatically generates reports that include pre-selected information about the asset and the tests that have been performed.

DESIGNED FOR FUTURE TESTING REQUIREMENTS

The modular and expandable CPC 100 is designed to meet expectations for substation commissioning and maintenance testing for years to come. New add-on components and software features are being continuously developed to cover present and future asset testing requirements.

Moritz Pikisch,
CPC Product Manager,
OMICRON, Klaus, Austria

Bringing advantages and advancements to a common product like cavity floor boxes for installers is a challenge that most brands within the industry face. Olson being a global specialist of standard, specialised and bespoke power distribution units and other electrical accessories, this has been overcome.

Focused on maintaining a high rate of new product launches that present innovative solutions to the market, Olson Electronics have once again expanded their product portfolio further. Using their global strength and market leading position, this now includes a range of cavity floor boxes and plates, providing power and data distribution within the modern office environment.

Designed with quality in mind, the floor boxes and plates are made from a highly robust steel construction and utilise a module sized plate system. Available in 87mm and 100mm depths, the new design provides easy access for wiring and installation of accessories with the base being of a single piece construction steel body and each compartment having four entry knock-outs for flexible conduits or cable glands. The internal compartment segregation plates can be moved to suit the module based configuration of the power and data plates used within each unit. The sub-frame allows for fine adjustments to accommodate uneven flooring, with a reversible self-closing lid which is recessed to allow for carpet infill. The durable, robust sub-frame supports the lid in case of heavy and high-traffic environments. Olson offer a wide range of power, data and telecom sockets to meet all the requirements of a raised floor system, including a rarely offered MCB / RCD / RCBO mounting plate. This flexible design enables the boxes to be easily modified to any configuration with ease, even after the initial installation, with a totally discreet final finish.

Although Olson now offer these standard floor box products available to order from stock, these still may not suit requirements for a specific installation. As with their core business for all of their product offerings, they also offer a bespoke and pre-wired configuration service. To accommodate for whatever the scenario, Olson can build fully custom units, eradicating the long-winded fixing and installation time.

The flexibility of their own metal machine shop, onsite paint spraying facility, assembly and testing service is all combined with a knowledgeable and experienced in house design team who can offer support to their customers and quickly propose bespoke solutions. The whole service, from start to finish being in one single location offers a quick manufacture and delivery time to a high quality.

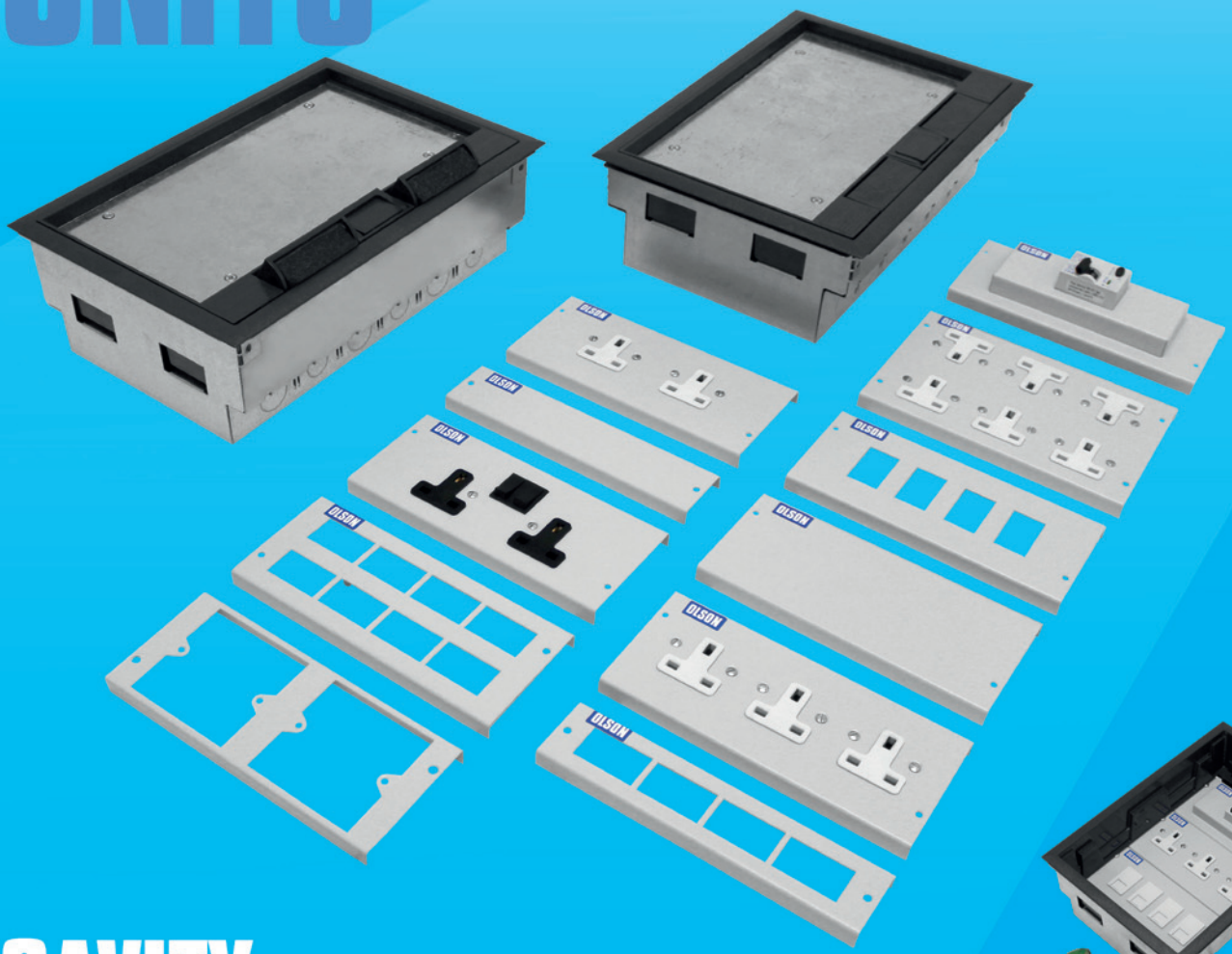
Time is money; indeed, it is and here at Olson we understand the importance of that and not wasting our customers time. We believe that if a product has been made to its highest standard and quality you should not have to replace it until it fazes out naturally as technology evolves and our customers need to upgrade their electrical systems in years to come.

We have a very fast turn around and our dedicated Production Team work around the clock to ensure orders are manufactured on time and shipped out as soon as possible from the minute we receive a purchase order.

Contact Olson further information.
+44 (0)20 8905 7273
sales@olson.co.uk
www.olson.co.uk

OLSON®

POWER DISTRIBUTION UNITS



CAVITY FLOOR BOXES

BESPOKE & PRE-WIRED SERVICE AVAILABLE

Designed and Manufactured in the UK

+44 (0)20 8905 7273 | sales@olson.co.uk | www.olson.co.uk

SINCE 1961

Dual-mode water facility in Singapore

Automation and electrification solutions for one of the world's first large-scale dual-mode desalination plants

ABB has won an order from Keppel Seghers Pte , a subsidiary of Keppel Infrastructure Holdings Pte Keppel Infrastructure) to supply complete electrical, instrumentation, automation and control systems for Singapore's fourth desalination plant, the Keppel Marina East Desalination Plant.

The Design-Build-Own-Operate (DBOO) project, initiated by PUB, Singapore's national water agency, will produce approximately 30 million gallons of fresh drinking water a day, enough to fill about 55 Olympic-sized swimming pools, when it is completed by 2020.

For this plant, ABB will design, engineer, manufacture, install, test and commission the complete plant electrification, instrumentation and water analyzers, automation and control system. The scope of supply includes 66kV gas-insulated switchgears, power and distribution transformers, medium- and low-voltage switchgears and drives, control system, remote terminal units, field instruments and analytical systems, AC and DC uninterruptible power supply, emergency diesel generator, bus duct and cabling system, local control cubicles and earthing system.

"We are delighted to be part of another iconic project in Singapore, and for our digital technologies to contribute to Singapore's water sustainability journey," said Johan de Villiers, Managing Director, ABB, Singapore and South-east Asia. "We are confident that ABB's experience in desalination and our proven capability of executing complex projects will enable us to deliver an efficient and reliable electrical, instrumentation, automation and control system for the Keppel Marina East Desalination Plant.

Singapore's water comes from four sources - reservoir water, imported water from Malaysia, ultra-clean, high-grade reclaimed water (branded NEWater in Singapore) and desalinated water. Desalination therefore plays a strategic role in Singapore's vision for a diversified and sustainable supply of water, and is expected to meet up to 30 per cent of water demand by 2060.

As a dual-mode facility, the Marina East Desalination Plant will be able to treat either fresh or sea water, depending on wet or dry weather conditions, thus reducing plant energy usage when freshwater is abundant.

ABB technologies are deployed across many of Singapore's water infrastructure projects, including the Marina Barrage, and the Changi Water Reclamation Plant of the Deep Tunnel Sewerage System Phase 1 project. ER

STEGO

SIMPLY INNOVATIVE. BETTER FOR SURE.

AC OR DC?

THIS IS THE INITIAL QUESTION.

STEGO's Data Centre rack **LED 025 lighting** with operating voltages from 110 - 240v AC, 24 - 48v DC and 12v DC meet all your requirements.

A good example of user friendliness in racks & enclosures is our extremely economic and long-lasting Lamp Series LED 025, which provides best lighting conditions due to its innovative LED technology. Learn move now

↗ WWW.STEGO.CO.UK

STEGO UK Ltd. - Unit 12, First Quarter Business Park - Epsom - KT19 9QN - UK

Happy anniversary, Data Centre World

Data Centre World is celebrating its tenth anniversary by promising its audience of data centre professionals a bigger and better event than ever before. Described as the go-to event for the data centre market, DCW is returning for its tenth year this March 21-22 at Excel, London. The 2018 edition of the event will feature an array of innovative conference speakers and the most comprehensive supplier exhibition possible in our industry.

Having started in 2008 with just 30 exhibitors, Data Centre World's stature has grown with the industry that it serves. By 2014, just under 10,000 data centre professionals attended the event. In 2017, that had doubled to 19,926. Of that number, 95% said they would come again next year.

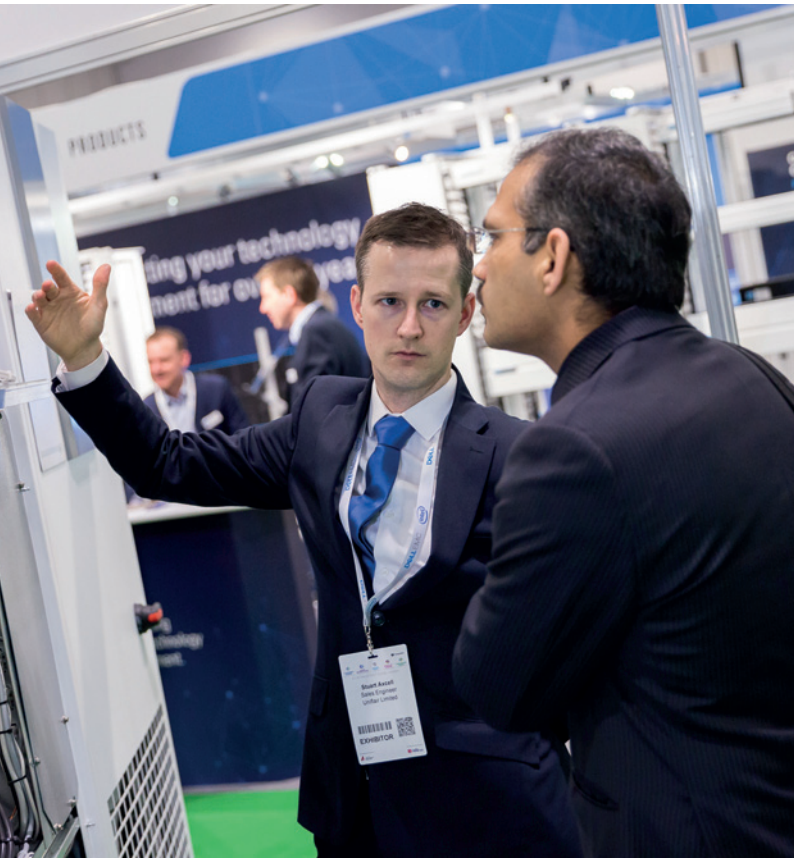
Event attendees can keep up-to-date with the very latest industry trends and network with their peers and competitors in the key product areas of power and energy, security, fire prevention, data centre routing and switching, and robotics automation.

The Data Centre World 2018 conference theatres will play host to 550 world-class speakers from across the technology and data centre landscape. These include Mozan Totani – director and head of data centre development and delivery at Oath, Garry Connolly – president and co-chair of the GDPR Awareness Coalition and Host in Ireland, Jon Summers – scientific leader in data centres at Research Institutes of Sweden and Emma Fryer – associate director at techUK.

Rabinder Aulakh, Event Director for Data Centre World, said: "We're really excited to be organising the event for its tenth year. It's been amazing helping it grow from strength to strength and we know that this year will be a fitting tribute for its decade anniversary.

"Our passion is supporting those in the data centre industry, which is pivotal to so much of the technology that we take for granted. I'm really proud to be able to welcome so many professionals from the industry, as well as our partners and sponsors such as Riello UPS, Huber+Suhner, Eaton, STULZ, Schneider Electric and RF Code, to name but a few," Aulakh explained.

New features of this year's show will include the Diversity and Talent stream, which will encourage discussion around skills shortages and shine a light on the diversity challenges the industry continues to face. Though progress has been made, there is still a lot of work to be done, and speakers from organisations such as Tech UK, GCHQ, Massive Interactive, CNet Training and Next Tech Girls will discuss how to tackle the issue.



Emma Fryer, from TechUK, praised Data Centre World's leadership in this debate, noting that an encouraging number of women are contributing to the programme content in speaking roles. "This sets a great example and demonstrates that women can and should hold positions of leadership in the sector," she added.

The upcoming General Data Protection Regulations, which come in force this May, mean businesses will have to carry out massive changes in the way they deal with data. The new rules will present both challenges and opportunities, which is why Data Centre World will be hosting a dedicated GDPR stream, including a panel titled GDPR & CCA: The Best Ways to Meet Compliance.

Ten years ago, few could have imagined some of the technology we now take for granted. Machine learning and artificial intelligence may at times seem far-fetched, but businesses are becoming increasingly curious and are starting to invest in these technologies.

A decade on from the inaugural event, Data Centre World will be hosting a specialised stream dealing with the practical applications of machine learning and artificial intelligence in the data centre.

More than 500 companies will be exhibiting at the show, including industry leaders such as Stulz, Schneider Electric, Eaton, Huber + Suhner, Legrand and Vertiv.

Leo Craig, general manager at Riello UPS, commented: "For Riello it's a must-attend show. With our everyday reliance on data in our work and home life, it would be foolish for us to not support the biggest data centre event in the UK. The show has got bigger every year and is certainly the go-to event for the data centre industry in the UK."

The one-of-a-kind Live Green Data Centre feature will once again be at the heart of the event, with a working showcase which will illustrate the implementation of cooling units, fans, cables and more. Dunwoody, Starline, TTK, Cellwatch, Excool, Reillo UPS are just some of those already involved.

Alongside a world-class exhibition, the show will offer four theatres, including the Data Centres of the Future Theatre, in which innovative and forward-thinking speakers will push the boundaries with their thought leadership and insights. Other theatres will focus on data centre design & build and physical security, energy efficiency cost management and DCIM, and facilities & critical equipment.

Phil Soar, CEO and Chairman of CloserStill Media, the organiser behind Data Centre World, said: "Our award-winning team have been working hard to make this event the best yet. The show leads the way in the data centre market and it's great to be able to celebrate its tenth anniversary at such an exciting time for the industry."

> **"The conference theatres will play host to 550 world-class speakers from across the data centre landscape"**

Delegates who attend Data Centre World are also able to visit the co-located events Cloud Expo Europe, Cloud Security Expo, Smart IoT London and Big Data World. Why not register for your free pass today to be a part of the must-attend events.

Register for your free tickets today to join a decade of data centre excellence: http://www.datacentreworld.com/PR ER

Is competence important?

Article by Andrew Linley training and compliance director of Electrical Safety UK. Linley has been involved in electrical compliance since 1988 and has supported many blue-chip clients and government agencies in developing effective and workable competence schemes. He remains active as a trainer/assessor and provides technical support to the electrical industry and awarding bodies

With the advent of the 18th Edition stimulating a media frenzy, perhaps now is as good a time as any to review the true meaning of competence, and what part training has to play. For many, the provision of training certificates is the focus and if an ECS card is available then all-the better.

The Level 3 Award in the Requirements for Electrical Installations (currently 2382-15) is a valuable qualification to hold, it's importance cannot be overstated; however, employers still insist on viewing this qualification as being the primary requirement for being an 'electrician' or 'electrically competent person'. What the 2382-15 award (and the subsequent update for the 18th Edition) does prove is that the person to whom it is awarded has been able to demonstrate that they are able to locate information contained within a technical standard (BS 7671) and interpret it in some way to answer questions. What it ▶

10 years and still the brightest event in the data centre calendar.

NEW FOR 2018:
ACCESS OVER 550 INDUSTRY SPEAKERS, 500 LEADING DATA CENTRE AND TECHNOLOGY PROVIDERS, NETWORK WITH THOUSANDS OF YOUR PEERS. ALL FREE OF CHARGE.
SECURE YOUR TICKET AT
WWW.DATACENTREWORLD.COM/ER

Register for your free ticket today here:
www.datacentreworld.com/ER

ORGANISED BY CloserStill

DATA CENTRE WORLD

21-22 March 2018 ExCeL, London
www.datacentreworld.com

CO-LOCATED WITH

CLOUD EXPO EUROPE | CLOUD SECURITY EXPO | SMART IOT LONDON | BIG DATA WORLD

ALL THE EMERGING TECHNOLOGIES.
ONE DIGITAL TRANSFORMATION JOURNEY.

PLATINUM SPONSORS: EATON, RFCODE

THEATRE SPONSORS: ANIXTER, DYMO, riello ups, Schneider Electric

VIP LOUNGE: Net Training

DRINKS & NETWORKING SPONSOR: HUBER+SUHNER

GOLD SPONSORS: AVK, centiel, Eurovent Certita, flexenclosure, legrand, LU-VE, MINKELS, Munters, NetworksCentre, Raritan, shentongroup, Schneider Electric, STULZ, TRIPP-LITE, Power, VERTIV, ORTRONICS

SILVER SPONSORS: KVMCHOICE, onsite energy

fails to do is verify the competence of the person to undertake electrical work, although, if the training was correctly delivered, the attendee should have gained a general understanding of the requirements of BS 7671, rather than being skilled on the art of passing exams.

Those who undertake electrical installation works should have an understanding of the requirements of BS 7671, and rightly so must hold a relevant qualification in order to apply for an Electrotechnical Certification Scheme Card as an Electrician. Those who need to know the particulars of BS 7671, including the intricate changes that the 18th Edition will introduce are those who undertake the design of electrical installations and those who perform compliance verification, and it is those who should be on the starting-blocks for July 2018 when the 18th Edition is released. There remains a culture within the UK that Electrical Engineers and Technicians are far too superior to be bothered with the 17/18th Edition; often it is those persons who most need to undertake the training and gain a better understanding of this vitally important technical document.

Another misconception is that BS 7671 covers all eventualities, however, Section 110.2 lists 13 instances of installations where the regulations do not apply. Those who have read the introductory note within HSE document HSR25- Electricity at Work Regulations 1989, Guidance on the Regulations will have observed the warning that BS 7671 only applies to installations operating up to 1,000 V ac and specifically does not apply to certain installations in mines and quarries, equipment in vehicles, systems for public electricity supply or explosion protection, although in most cases the requirements of the Electricity at Work Regulations 1989 must be met. The requirements of BS 7671 will have little relevance to those who's core work is in relation to electrical equipment of machines covered by BS EN 60204, lift installers covered by BS 5655 and BS EN 81, equipment on board ships covered by BS 8450, equipment of aircraft or equipment of mobile and fixed offshore installations, to name a few. Finally, many companies assume that BS 7671 is an installation manual, or a safe system of work, these being something the Wiring Regulations have never alluded to be.

Looking at the legal requirements for competence, Regulation 16 of the Electricity at Work Regulations 1989 could not be any clearer:

No person shall be engaged in any work activity where technical knowledge or experience is necessary to prevent danger, or where appropriate, injury, unless he possesses such knowledge or experience, or is under such degree of supervision as may be appropriate having regard to the nature of the work.

In reference to danger, Regulation 2 includes the risk of electric shock, burns and fires of an electrical origin, electrical arcing, electrical explosions and explosions initiated by electrical energy. If there is a need for a person to have knowledge to undertake work on or near to electrical systems, then they should possess that knowledge or be adequately supervised. If there is need for a person to have experience to undertake work on or near to electrical systems, they should possess that experience or be adequately supervised. If both knowledge and experience is required, then that person should possess both. ▶

DATA CENTRE® SUMMIT 2018 LONDON

The Business Design Centre, London | 8th February 2018 | www.datacentresummit.co.uk

Data Centre Summit London is a one-day conference for professionals working in the data centre industry. With thought-provoking seminars by industry experts, an exhibition of leading data centre industry vendors and networking opportunities, this is an essential date for your calendar.

↘ Explore

ways of saving money, develop your business and share the experience of other organisations

↘ Create

new business opportunities and form new partnerships with leading vendors

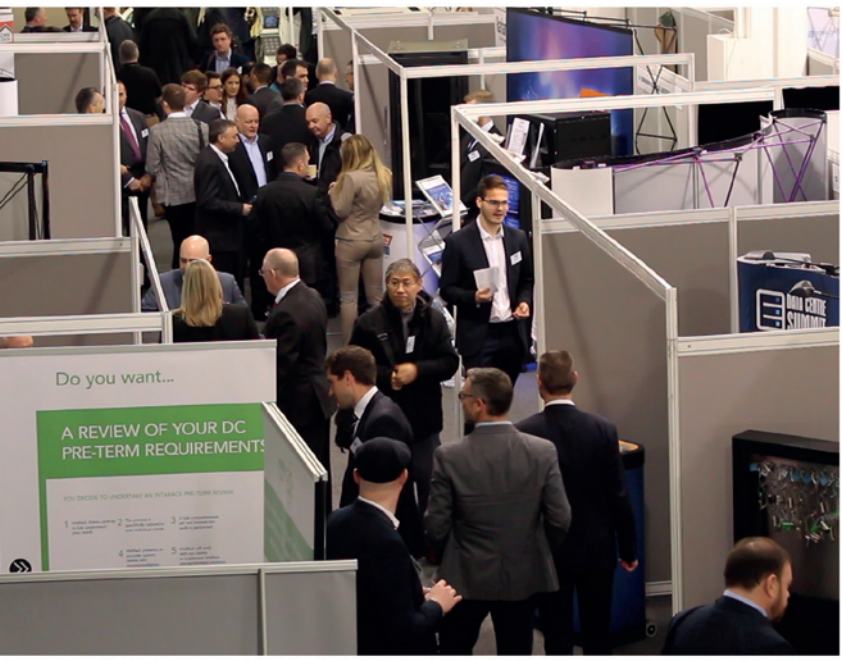
↘ Network

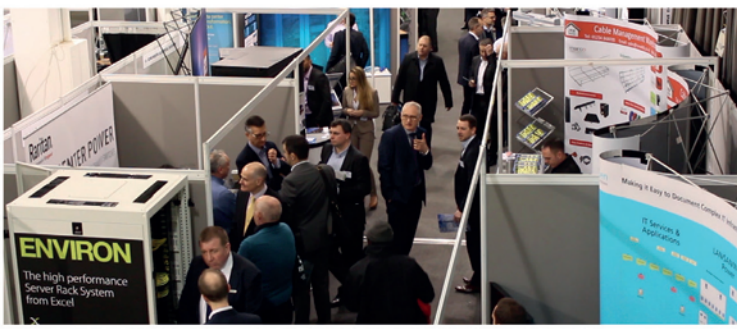
with peers and vendors from other organisations

↘ Discover

what's new in the industry and keep up to date with the latest innovations and technologies

To book a stand or discuss marketing opportunities contact or Lloyd Vella on 01353 771461, lloyd@lgnmedia.co.uk or Ian Titchener on 01353 771464, ian@lgnmedia.co.uk





PLATINUM SPONSORS

Lenovo

riello ups

GOLD SPONSORS

CMW LIMITED

Munters
Your Perfect Climate

RITTAL

The statement under such degree of supervision as may be appropriate having regard to the nature of the work allows for persons to be trained or undertake work experience.

Those allied to the electrical industry are often forgotten about when determining competence is discussed, including those who service vending machines, compressors, lift installations, and machine repairs or maintain alarm and door access systems. In many cases those persons have valuable industry experience but demonstrating electrical competency is often very difficult. Often the basic principles of electrical isolation (including the need to prove dead using an Approved Voltage Indicator) is not fully understood. Those working near to electrical systems could include persons undertaking re-lamping, construction or demolition work, groundworks or farming.

The Management of Health and Safety at Work Regulations 1999 requires, through Regulation 13, that every employer shall, in entrusting tasks to his employees, take into account their capabilities as regards health and safety. Here the legal requirement that employers determine the competence of employees is set in stone, and the allocation of a task to an employee implies that the employer has determined that the employee is competent to undertake that task, unless they have put a level of supervision and instruction in place to take account of any lack of knowledge and experience that the employee may have. In this case it may not be the Managing Director who has made the decision, it may be a manager, supervisor, chargehand or team leader who has assumed the role of employer by directing other persons to work (Health and Safety at Work Etc. Act 1974, Section 37).

> **A Certificate of Appointment would make life easier for everone involved in the work environment**

Qualifications and training certificates have a valued place within the competence world, but they are not the only requirement: having a drawer full of certificates are not, on their own going to satisfy the Enforcing Authority that persons are competent, and additional evidence will be required. Persons may have a general level of competence; however, this may not extend to the specialist knowledge and experience associated with certain technical tasks, electrical equipment or safe systems of work to be implemented. Familiarity with certain types of switchgear can only be gained through exposure and training on that switchgear, and understanding site electrical networks such that they can be operated safely cannot be gained from a five-minute overview.

When considering competence there is a moral obligation to think beyond knowledge and experience, to determine that a person is competent there should be auditable evidence that they have Skill- to undertake the work without putting themselves and other at risk, Knowledge of the work that they are to undertake and the systems that they will be working on, the right Attitude to undertake the work correctly, in the correct sequence and using tools and equipment as per their Training, the relevant Experience to undertake that particular task, and most importantly, the ability to recognise their Limitations and act on them before they become a danger to themselves or to others.

Looking back to the poor team leader, who although not involved in the recruitment and appointment process, has to determine that any employee that he is going to set to work is competent to do so; often a 'spur of the moment' decision that can have lasting implications. Here the benefit of a formal competency assessment process, carried out by an appropriate person, and the issue to competent persons of a Certificate of Appointment would make life easy for everyone involved in the work environment. This may be an online facility, whereby only persons who are competent may be allocated to a particular task, or a card or piece of paper carried by the Competent Person, detailing what work they may or may not undertake.

Regulation 13 of the Management of Health and Safety at Work Regulations 1999 also requires that training, where appropriate be undertaken on appointment or when employees are exposed to new or increased risks and that refresher training will most likely be required.

The level of importance that an employer places on competence is often inadequate, unfortunately this is something that is not recognised until there has been an accident and the Inspector from the Enforcing Authority is asking for records of training, along with evidence of instruction, supervision and safe systems of work for the activity in which the incident occurred. Such evidence will need to be relevant, suitable and sufficient. Convincing Magistrates, or in the worst case a jury that everything that was done was suitable, sufficient and reasonably practicable will be difficult in the best of circumstances; relying on a drawer full of certificates alone is unlikely to meet the criteria.

Whilst this might be a daunting task, with a little forethought it need not be a laborious or complex process. Identifying the tasks that will ordinarily need to be undertaken and any specialist skill required to complete those tasks is the starting point, then identify how competency might be determined. Remember, there will be different ways of determining competence, people will have taken different routes to reach the same point and the process will need to be flexible enough to accommodate this. There may be need for persons whom are being assessed as being competent to undertake activities under observation to verify that they have the knowledge and experience to be authorised to undertake that task without further direct supervision.

Persons may be authorised to undertake tasks as outlined, which may be collective, or area / job defined. The authorisation may be restricted for individuals or may be subject to certain conditions being met. A training and experience plan may need to be put into place, which if implemented must be monitored. Finally, any approvals should be reviewed periodically. ER

MORE SAFETY - WITHOUT MORE COST

Wylex is about to be first to market with a range of 30mA Miniature RCBOs that are safer, and quicker to install and test – all at no extra cost.

Just one module wide, they give installers almost 30% more working space inside the consumer unit. All of the circuits in a residential installation can be individually protected and still fit in a consumer unit that's just 292mm by 255mm. The range includes ratings from 6A to 40A.

It's the first single module consumer unit RCBO that switches both live and neutral conductors. This totally isolates faulty circuits, making for a safer user environment while waiting for the fault to be rectified.

Testing is easier too. There's no need to disconnect the circuit cables, so it takes only one second to get a circuit ready for test, saving time and money, especially for social landlords who regularly test installations.

Wylex • 01543 455000
www.wylexreasons.co.uk

BATTERY-POWERED MODEL ADDED TO RANGE

ESP continues to develop its Aperta range of door entry products and following the success of its Wi-Fi Door Stations launched earlier this year, the company has now introduced a battery-powered version - making it quicker and easier than ever to install a security solution, without the need for cabling.

The new Wi-Fi Door Stations - available in graphite grey and matt black versions – are powered by 4 x AA batteries and each kit comes with a battery-powered chime which can be placed in a convenient location in the home.

ESP • 01527 515150
www.espuk.com

HYGIENIC DESIGN FIRE EXTINGUISHER ENCLOSURE

Rittal has been developing its Hygienic Design range over many years. Its customers have benefitted from better protection of their electrical and electronic equipment, as well as less time spent washing down, and cleaner manufacturing environments.

Fire extinguishers are an absolute necessity on any manufacturing site, but they can be a haven for dirt and bacteria.

A new addition to the range, the Hygienic Design fire extinguisher enclosure, is a simple solution that not only reduces the risk of contamination from these essential devices, it also protects them, helping you to ensure that they are fully functional whenever they're needed.

Rittal • 01709 704000
www.rittal.co.uk

AHEAD OF THE CURVE

Launched earlier this year, Scolmore Group's Deco Plus is an extensive range of wiring accessories that is designed to bring even greater choice and flexibility at the premium end of the electrical accessories industry.

Comprising more than 800 decorative metal wiring accessory products, Deco Plus introduces smooth, contemporary curves that will have wide-ranging appeal with contractors, specifiers and end users alike.

Offering exceptional quality and unprecedented value, the range is available in seven finishes and the switch plates are all modular as standard, allowing the creation of virtually any switch plate design required.

Scolmore • 01827 63454
www.scolmore.com

NEW SAFETY STANDARDS FOR BUS BAR CONNECTIONS

Now available from Martindale Electric is the new range of insulated Drummond G clamps, designed to provide safe and easy connection to bus bars for voltage measurement.

The new range of moulded G clamps, which eliminate the need to drill the bus bar, provides installers with a safe and reliable connection, via a standard 4mm socket.

Ideal for connecting power monitoring and measuring equipment, the clamps are clearly colour coded in black, brown and grey colours, to match the colour coding of individual phases in 3 phase systems.

Martindale Electric • 01923 441717
www.martindale-electric.co.uk

NEW METHOD FOR TIMING TESTS ON GIS

OMICRON's circuit breaker test system CIBANO 500 now offers the new Current Sensor Measurement (CSM) method. This allows the operating times of the circuit breaker to be determined accurately despite the fact that the GIS is grounded on both sides.

During a close or open operation of the circuit breaker, the current sensor measures the cur- rent change through the ground connection or the circuit breaker and sends its signals to CIBANO 500 which determines the switch response times.

Since the new current sensor has a flexible design and can be easily installed on a multitude of different grounding switches, it is ideal for on-site applications in GIS installations.

OMICRON • 01785 251000
www.omicronenergy.com

Loop test with confidence

The all-in-one installation tester with confidence built-in

MFT1741

With the newest, patented pending algorithm for earth loop impedance testing, Megger introduce the MFT1741.

- Fast, repeatable 3-wire no–trip loop test results on normal circuits
- 3-wire loop test results from noisy circuits that are repeatable and in which you can have confidence.
- Built–in confidence meter that indicates the reliance you can place on your loop measurement
- Results unaffected by RCD or RCBO impedance

These new features combined with those of the well liked MFT1701 series of toughness, ease-of–use and reliability make the MFT1741 a very attractive package.

To find out more scan the QR code or call 01304 502 102

Megger Ltd, Archcliffe Road, Dover, CT17 9EN, T. 01304 502101

Megger

Power on