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Current committee members of the newly founded Earthing and Lightning Protection Association.

Following more than two years of hard work, an association for Earthing and Lightning Protection (ELPA) has been established by a group of industry heavyweights who saw the need for a body that would become an industry benchmark and source of information for businesses and individuals seeking to protect their buildings or homes. The non-profit organisation also aims to establish a uniform interpretation of the codes of practice, which will help to protect the industry's image and increase the standard and reliability of lightning protection service providers.

Initially, ELPA started out as a committee that met once a month to explore how best to establish such an organisation and ensure the achievements of its goals. These early meetings led to the conclusion that a non-profit organisation of voluntary membership was the way to go. After approximately a year, the founding committee decided to hold its first 'annual general meeting' which attracted a significant portion of the industry and where almost all the major companies were represented by their owners. Here, a unanimous vote was taken to go ahead and create an association under the principles presented.

Numerous meetings and discussions have since taken place, resulting in what will be an important addition to the standards of safety in South Africa in terms of the training and certification of qualified designers, installers and inspectors. The University of the Witwatersrand, SAIIEE, ECA and LIGHTS have already shown support for ELPA and are currently finalising MOUs.

Since ELPA represents a trade directly involved in the provision of the first, second and third lines of defence against one of nature's most mysterious phenomena, a pass mark for its examination process will be 80% to ensure the competence of its members. It is upon this rigorous standard that ELPA plans to provide South Africa with a genuinely certified, lightning protection industry.

The provision of a central database of suitably qualified and skilled lightning protection service providers will help people and organisations source specialists skilled in the art, science, and practises of conformant lightning protection designs, components, installations, inspection, testing

and certification. The modular nature of the skills training programme will equip ELPA certified specialists in many of the higher aspects of contracting such as quality control programmes, risk identification, analysis and management, amongst others.

Committee members include: chairman, Alexis Barwise (DEHN Africa), Mike Visser and Jan Jordaan (Power Quality), Pieter Human

CONTINUED ON PAGE 3

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PERSONALITY OF THE MONTH: LEBO LESHABANE

I'VE BEEN THROUGH WHAT I'VE BEEN THROUGH SO I COULD GET TO WHERE I AM RIGHT NOW



Lebo Leshabane

LEBO LESHABANE, dynamic CEO of iX engineers, judge for the ECA (SA) Residential Excellence Awards and formerly managing director of Black Jills Engineers, has extensive experience in the design of infrastructure services, project and programme management, and business management. As deputy president of the National Society of Black Engineers, she promoted engineering disciplines to high school learners and mentored undergraduate tertiary students and new graduates. This love of inspiring people to be the best they can be reflects in her management stance, which is to encourage her staff to think beyond the now and dream big.

Sparks: Where were you educated?

LL: At the University of the Witwatersrand and UNISA.

Sparks: How long have you been involved in the electrical industry?

LL: I have been in the electrical industry since 2005.

Sparks: When and where did you start your career?

LL: I started my career in 2002 at BT Mongwe & Associates.

Sparks: What are the greatest changes you have seen over the years?

LL: There have been marked changes in the field of energy efficiency and energy generation. 'Green' is the current buzz word. A lot of renewable energy has been put in place and it has become more and

more important to diversify.

Sparks: What major projects have you worked on and what is your greatest accomplishment?

LL: I was involved in the 2010 World Cup. I enjoyed working with the complexities involved in the design and delivery methods of the project.

Sparks: Have you won any awards?

LL: No significant awards.

Sparks: Who has been your inspiration or have you had a mentor who has influenced your career?

LL: I derive inspiration from different people, who inspire me in different ways, in different areas of my life. Thuli Madonsela is one of many.

Sparks: What, to your mind, is one of the biggest challenges facing the industry at this time?

LL: There is uncertainty in the market in terms of where the country is going and whether there are enough financial resources to support our growth strategy and our infrastructure deliverables. We're not in the political space but politics does affect us and our business. Given the recent downgrade of the country, it makes things a whole lot more challenging.

Sparks: What do you enjoy most about your job?

LL: The fact that I don't have limits. I can think about anything and work towards realising it or achieving it. I don't like working in a confined environment. I want the freedom to be creative, and in my current position I have the flexibility to do that.

Sparks: How do you motivate your staff?

LL: Through sharing with them what possibilities there are for them. I encourage them to dream bigger and not focus on business as usual. I share my dreams and aspirations about the industry and the business, and that for me is a greater motivation than something temporary like a salary increase.

Sparks: If you could "do it all again", would you change anything? If so, what would that be?

LL: I wouldn't change anything because I've been through what I've been through so I could be where I am right now. Every success and failure has had its own role to play in my growth and development.

Sparks: Would you advise a person leaving school to enter the electrical industry? And if so, why?

LL: Yes, because the industry still has so much to offer. There are still a number of untapped opportunities that current engineers do not have

the time to look into and develop into real solutions for a real market. We are moving away from fossil to renewable forms of energy, we are moving towards cell generation. We are decentralising our energy generation and in the near future we will be able to generate and store our own energy.

Sparks: What is your advice to electrical contractors and/or electrical engineers?

LL: Don't be comfortable in your own comfort zone. There are a lot of challenges facing our country in terms of energy theft, electricity theft, electricity losses due to transmission and distribution networks that are not well maintained. We need our electrical contractors and engineers to come up with solutions that address these challenges, we cannot wait for government.

Sparks: What is your favourite quote?

LL: 'Innovation distinguishes between leaders and followers', Steve Jobs.

Sparks: Name three things on your 'bucket list' (things you want to do before you 'kick the bucket').

LL: Solve one problem that is currently affecting our community; innovate something that currently doesn't exist; and go to space with my daughter.

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VOLTEX SHINES AT AFRICA'S LARGEST POWER AND ENERGY SHOW

POWER AND ELECTRICITY WORLD AFRICA provides a successful platform for exhibitors and a vibrant meeting place for buyers, sellers and their partners to negotiate the deals that drive Africa's burgeoning energy sector. Voltex, currently South Africa's largest electrical and lighting distributor, was at the forefront of the action at the 2017 expo held on the 28th and 29th of March at the Sandton Convention Centre.

With more than 6000 attendees over the two day event, the impressive and colourful Voltex exhibit drew a lot of attention and interest. Visitors were able to view interactive product displays of MV/LV solutions, Weidmuller enclosure products, LSIs circuit breakers and the full range of Elspec energy-saving solutions. The 3-phase portable power quality analysers from the Elspec BlackBox range were definitely among the stars of the show. These products allow the end-user to monitor power quality and measure, store and analyse waveform signals, regardless of their size. Solar and home automation products also attracted interest from attendees, chiefly because alternative methods of power generation and power-metering have become essential, especially for those in the agricultural sector.

In addition to exhibiting an array of the latest technologies, a select group of keynote speakers outlined the trends, innovations and ever-evolving developments in the fields of energy and electricity.

Voltex's specialist supply divisions include Atlas Group, Bellco Electrical, Cabmed, Cabstrut, Eagle Lighting, Electech Solutions,

EMS Invirotel Energy Solutions, Impact Power Innovations, Lighting Structures, Mubelo Electrical, Phambili Interface, Solid State Power, Specialised Electrical Accessories, Technilamp, Versalec Cables, Voltex Lighting, Voltex LSIs, Voltex MV/LV, Voltex Smart Solutions, Waco and Waco-R.

Voltex offers short and long-term supply contracts via structured supply agreements that suit all parties' goals, and has an inventory comprising more than 60 000 line items.

Enquiries: www.voltex.co.za



CONTINUED FROM PAGE 1

(Tesla Power and Lightning Protection), Nelson Pillay (Vodacom), Doug Kay (Lectro-Tech), Andrew Economou and Kevin Rahn (Pontins), Gary Thoresson (Thor Earthing), Trevor Manas (LPConcepts), Paul van As (Surgetek), Seath Scowby (Lightning Protection Services), Bertie van Zyl (Advanced Lightning Protection), Ron Fourie (PROlightning), Jacques Hannekom (EHL) and Nico van der Berg (Independent Inspectors).

ELPA will launch officially at its second Annual General Meeting to be held at the University of the Witwatersrand on June 19, where Professor Ian Jandrell, Dean of the Faculty of Engineering and the Built Environment, will give the keynote address. It is here too that the constitution of the organisation will be voted on and approved by a sufficiently broad section

of involved parties, enabling ELPA to legitimately claim its appointment as an industry representative.

Until then, interested parties are able to register online via the ELPA website where registered parties can also access the founding statements and constitution in order to petition the chairman for additional agenda items to be addressed. The board is committed to an open, fair and just association dedicated to the continual improvement of its members in an environment of equality where every member's voice and vote counts. To become a member of ELPA, visit www.welpasa.org.za.



TRAINING DURING A RECESSION: ESSENTIAL OR 'NICE TO HAVE'?

Let's begin by looking at a definition of 'recession': *Recession – a period of temporary economic decline during which trade and industrial activity are reduced, generally identified by a fall in GDP in two successive quarters...*

When there is a recession, people are more inclined to save money because there is a drop in confidence. Secondly, if people suspect they may become unemployed because of the recession, they do not want to spend or borrow money; it is less risky to save. What about spending money on training during a recession? Is training essential or is it just 'nice to have'?

Although there are economists who would argue that South Africa is not yet in a recession and, according to former Minister of Finance, Pravin Gordhan, South Africa can still avoid a recession

through continued cooperation between the state and private sector, the point I am making is that if we are aware there is a strong possibility we could slide into a recession, we need to consider how we will tackle training and development during what will be a challenging period. How we prepare to navigate through the tough times will ultimately determine whether our companies sink or survive and thrive when better times arrive, which they will.

Those of us who went through the 2009 recession will remember that training and development budgets were among the first expenses to be scrapped or severely cut back. Before resorting to this approach, we should calculate the impact a recession may have on learning and development within our companies, remembering that organisations that step up efforts to develop

employee skills and competencies in the face of a downturn (often with reduced resources), are more likely to emerge stronger and more resilient when the upturn begins.

If you need more encouragement or any justification to keep a firm grip on your training budget during this difficult patch, consider the seven reasons outlined by the Institute of Directors in the UK who discuss the competitive advantages for those companies who do not cut their training spend in a recession:

- Ensure that your business is well-positioned when the economy starts to recover. Those businesses that do not survive will open up market share to those who do.
- Remain competitive. If your employees are knowledgeable and motivated, they will find new ways of generating revenue.

• Understand your customers' buying habits and how you can build on their loyalty. You need to maintain repeat business in a recession.

• Enable your employees to stand back from day-to-day operations and understand the strategic implications of their work.

• Send one of the most powerful messages to your employees – that they are valued. When your employees are anxious about job security, it is more important than ever to demonstrate a commitment to them.

• Avoid a long term skills shortage among your employees. UK businesses are still recovering from skills lost during the 1990s recession owing to poor investment.

• Training increases productivity in the short term as well as the long term. The sooner you engage your staff, the earlier you can address and deal with the impact of the recession.

It is important to determine the impact of the possible recession on learning and development, identify key positions and ensure that you train and maintain these key staff members – and when the upturn begins, you will be ready to reap the rewards.

<http://www.fullpotentialgroup.co.uk/blog/TrainingThroughRecession>

HIGH VOLTAGE, HIGH POWER DC CONTACTORS



GIGAGVAC has released a new family of HX contactors, with current carrying capability up to 600 A, 1500 V. The high voltage/high power load break bi-directional dc contactors are robust and designed for high voltage power conversion equipment OEMs: photovoltaic/battery inverters, battery pack designers, dc combiner boxes and other HVDC industrial drive systems.

They offer excellent isolation performance, i.e. 10 kV withstand between open contacts for critical safety applications, and mechanically linked SPDT auxiliary contacts for critical safety applications. Other benefits include:

- Reliable indication of the main contacts in the closed position.
- Hermetically sealed – exceed IP67-69 specifications. No exposed arcing to open air environments.
- Designed to meet UL1604 for hazardous locations.

The HX contactors, designed and manufactured in Santa Barbara, USA, are available locally from Denver Technical.

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*E&OE

BEWARE of these UNSAFE products

- There are more than 3000 electrical fires annually in South Africa and there are many more with unknown causes that could be electrical. Cases of electrocution are not widely publicized.
- The products illustrated below and purchased locally are a tiny sample of many sub-standard, unsafe electrical products being distributed in South Africa on a large scale.
- The problem also extends to safety devices such as circuit breakers and earth-leakage units that do not perform their function and endanger lives and property.
- Such products do not comply with compulsory standards and are illegal. Distributing such products is a criminal act, yet unscrupulous suppliers are able to distribute them with apparent impunity.

- Non-compliance is difficult to assess and unsuspecting users are using unsafe products in their homes and in commercial and industrial buildings.
- Sub-standard products are sometimes distributed under different brand names and in packaging that obscures their identity. *A common response to exposure of unsafe brands is to rebrand the product and/or to change its packaging.*
- Documents produced as authorisation to distribute products are not always reliable proof that the version of the product currently in circulation complies with regulations.**

Except for the SAFY SF-A007 adaptor which has visual non-compliances, the SAFEhouse Association has had the electrical products depicted below tested by an accredited laboratory. They have been found to be non-compliant with SA regulations and are unsafe.

PRODUCT: 10M LAMP HOLDER			REDISSON LAMP HOLDER
NON COMPLIANCE	RISK	POSSIBLE OUTCOME	
1 SANS 1411 – Cable conductor resistance - Fail	Conductor resistance higher than the maximum specified – increases resistive losses in cable.	Overheating and fire hazard. The conductor material used is illegal and dangerous.	
PRODUCT: 2 WAY CORD EXTENSION SET 10A – 5m			SAFY CORD EXTENSION SET
NON COMPLIANCE	RISK	POSSIBLE OUTCOME	
2 SANS 1661: Ref SANS 60277-5: CI 5.1.1: Conductor resistance – Fail	Conductor resistance higher than the maximum specified – increases resistive losses in cable.	Overheating and fire hazard. The conductor material used is illegal and dangerous.	
PRODUCT: PLUG-IN ADAPTOR TYPE SF-A007			SAFY PLUG-IN ADAPTOR
NON COMPLIANCE	RISK	POSSIBLE OUTCOME	
1 SANS 164-2 Well characteristics - Fail	Risk of live pins exposed on entry.	Risk of electric shock without any earth leakage protection. This product is dangerous and has been banned for many years now.	
2 SANS 164-2 Single pin insertion – Fail	Access to live contact with foreign metallic object.	Risk of electric shock – especially to children.	

WE URGENTLY APPEAL TO:

- All re-sellers concerned to recall the products from the market, including from users that may be using the products in homes and other buildings.
- The National Regulator for Compulsory Specifications (NRCS) to institute the action required in terms of its mandate to protect users.
- The National Consumer Commission to institute the action required in terms of its mandate to protect consumers who may be potential victims.

SAFEhouse has identified a retailer for the REDISSON product, an "AFRICA CASH & CARRY" outlet in the Gauteng area, with whom SAFEhouse has had a meeting but who have not responded to our communications and there is no indication that the products have been recalled from the market, as they ought to be. The product appears to have not been withdrawn from the Africa Cash & Carry store in Crown Mines. It is also known to be available at other re-sellers.

SAFEhouse has attempted to make contact with the importer of the REDISSON products but has had no response to the approach.

SAFEhouse has identified retailers in the Gauteng area, "CRAZY PLASTICS", for the "SAFY" brand of products above.

In August 2015 the apparent owner of the Crazy Plastics brand was advised of these findings, but Crazy Plastics outlets were still offering the product for sale a year later. Neither the brand owner nor the outlets concerned responded to our communications. At least one of the products depicted above was still being offered for sale at Crazy Plastics, Alberton. There is no indication that the products have been recalled from the market, as they ought to be.

SAFEhouse has reported its findings to the National Regulator for Compulsory Specifications and lodged a complaint with the National Consumer Commission.

In our view, these products are dangerous and should be withdrawn from the market. Sold products should be recalled as users are at risk.

SAFEhouse appeals to the importer, distributor and retailer of the products to make contact at the email address or telephone number below.
SAFEhouse cautions distributors, retail chains, hardware stores, electrical contractors and end-users.

The South African SAFEhouse Association is an independent, registered, non-profit organization established by the electrical industry and committed to communicating with customers.

The South African SAFEhouse Association has been established to combat the proliferation of dangerous electrical products and services by:

- Making the market aware of the risks in using such products and services
- Exposing sub-standard products and services
- Persuading specifiers, suppliers and distribution channels not to recommend or to offer such products and services for sale

For more information contact:

Barry O'Leary: Tel: 011 396 8251 | Email: barry.oleary@safehousesa.co.za
Pierre Nothard: Tel: 011 396 8140 | Email: pierren@safehousesa.co.za

www.safehousesa.co.za





UPS SYSTEMS DESIGNED FOR SAFE AND RELIABLE POWER SUPPLY

LEGRAND'S extensive range of uninterruptible power supply (UPS) systems encompasses solutions designed especially for the protection of data in small offices, commercial environments and home applications.

"Niky and Niky S UPS single phase systems, which ensure a safe and reliable power supply from 600 VA to 3000 VA, have been developed by Legrand for quick installation and easy configuration," says Sonja Leibbrandt, marketing and pricing manager, Legrand SA. "These compact microprocessor controlled UPS systems have an electronic automatic voltage regulator (AVR), an intelligent communication interface and integrated self-diagnostics to provide reliable protection of the installation."

Other features include a cold start function, an RS-232 or USB

interface and modem/LAN telephone protection. Buttons and LED signalling provide real time control of the status of the UPS system.

Niky line interactive UPS: Single phase VI systems, with IEC multi-socket outlets and a pseudo-sinusoidal waveform, offer a back up time between 5 and 30 minutes. This system offers advanced management according to battery discharge level.

Niky S line interactive UPS: Single phase VI-SS systems have a sinusoidal waveform output, excellent voltage regulation and intelligent battery management, to offer protection against voltage peaks, as well as over-load and short-circuit protection. The back up time of this system, which is either eight or nine minutes, is measured under optimum operating conditions.

A range of communications accessories has been designed for



Legrand's Niky and Niky S UPS single phase systems ensure a safe and reliable power supply from 600 VA to 3 000 VA.

managing and configuring the UPS, as well as for remote control of the system. The UPS systems are available in convenient, user-friendly packaging and are supported throughout the country by Legrand and its carefully selected distributor network.

Enquiries: +27 (0)11 444 7971

NEW BACNET TOUCHSCREEN THERMOSTAT



JOHNSON CONTROLS has launched a new line of BACnet thermostats. The T8800 series is designed for growing the network thermostat market and features Building Automation Systems (BAS) integration capabilities that enable remote monitoring and programmability for efficient temperature control. The T8800 series supports 2pipe or 4-pipe FCU applications.

Says Neil Cameron, Johnson Controls area general manager: Building Efficiency: Africa, "We are seeing an increasing requirement to integrate multiple HVAC and BAS components and systems in the South African market. The T8800 series allows companies to seamlessly incorporate an aesthetically modern yet simple to use touchscreen device into their existing BAS and fan coil HVAC environments".

Temperatures and timers can be modified through the thermostat, enabling businesses to drive more efficiency with regards to energy consumption and deliver more flexibility for a comfortable and productive environment. The thermostat can be used with heating and cooling fan coil units.

Features and specifications:

- BACnet MS/TP communication – supporting BAS integrations for up to 100 devices on Metasys Engines.
- Modern design – touch screen, featuring easy user interface.
- Wide applications for fan coil units – models available are on/off, proportional with 3-speed fan control.
- Energy saving – occupied/unoccupied mode selection.
- Accepts remote temperature sensors – connect to remote type II 10K NTC (e.g., TE-636S-1).
- BTL Certified – BACnet Testing Laboratories Protocol Revision 12 (BTL) Listed BACnet Application Specific Controller (BASC).
- Colour options – customised colour options for orders of 300 or more.

Enquiries: +27 (0)11 921 7141

INTRODUCING



The Earthing and Lightning Protection Association will offer CERTAINTY through CERTIFICATION and COMPLIANCE

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JUNE 2017

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TTR AND WINDING RESISTANCE TESTER IN ONE BOX

The Megger MWA3 Series transformer winding analyser is designed to perform transformer ratio and winding resistance testing in one box, quickly and efficiently. It is an advanced three-phase portable transformer test system that reduces set-up time, increases job-site safety and delivers improved productivity versus individual instrument testing.

The unit's light weight (15 kg) and small size (280 x 280 x 460 mm) make it 40% lighter to carry and offers 55% more space in vehicles than other equipment. The ease and convenience of using the same set of test leads eliminates the need for frequent ladder trips and mistakes with lead connections from one lead set to another: one set of leads equals one ladder climb.

The MWA3 Series provides complete ratio, phase and winding resistance measurements for a three-phase transformer. All ratio and winding resistance tests are performed in one instrument with one three-phase lead-set connection. Testing complex three-phase transformers becomes easier with the MWA300 Series, as the operator uses one setup, one connection and one common test form for a consistent, easy-to-learn test method.

The following tests are easily performed with the MWA3 Series – all with one instrument and one three-phase lead-set connection: three-phase turns ratio, three-phase winding resistance, auto vector detection, heat-run test, OLTC/continuity (make-before-break), core demagnetisation, magnetic balance/flux distribution, excitation current, polarity, and phase angle deviation.

INNOVOLT POWER MANAGEMENT DEVICE

Innovolt offers an intelligent electronics management platform that combines patented sensor technology with comprehensive analytics software to safeguard and optimise the performance, productivity and usable life of essential electronic equipment through the remediation of power disturbances. By making use of the Innovolt power manager (PM16-230) solution, customers achieve improved electronic uptime, lower repair costs and increased revenue.

The most common power disturbance is voltage sag, which is a small reduction in supply voltage or a short period of low voltage, as when an air conditioner starts up and the lights dip for less than a second. This happens frequently as machines switch on and off. The voltage drop itself can cause problems but as the voltage drops, so the current increases and the corresponding current surges are the biggest cause of problems with digital electronics. Equipment jamming, satellite decoders rebooting, VOIP calls dropping and premature failure of electronic products are all caused by voltage sags. A small percentage of problems are caused by voltage surges/transients (lightning and network based events) but statistically the vast majority are caused by voltage sags.

The Innovolt power manager records the time and type of each event it – and not the connected equipment – is subjected to. The event is displayed on a built-in screen and can be downloaded to compile important statistics relating to the quality of power and the events that have taken place over a period of time. The information can be downloaded to an iPhone, a PC or the Innovolt Power Doctor II. It can then be uploaded to the Innovolt management cloud for data analysis, should this be required.

Using the Innovolt power manager is as simple as unplugging the device to be protected, plugging the power manager into the supply socket (Innovolt PM16-230 is a single phase pluggable device using a normal plug and power socket), plugging in the device to be protected, and 15 seconds after the Innovolt PM16-230 is switched on the power is protected and the device can be switched on.

Product ranges currently include 16 A and 30 A options. The PM30 is 30 A rated and ideal for computer servers or printing machines that exceed 16 A. There is a choice of devices for interrogation of the power problems in the cloud, with both iOS and Android supported via an easy app with use of the Power Doctor PDSA-200.

Two interface options are available:

- The externally-controlled model MWA300 is a 'black box' style package that is remotely controlled by PowerDB software running on an external PC (not provided).
- The MWA330A model features an optional built-in 12-inch touch-screen computer.

PowerDB software provides the unit with a common user interface to minimise operator training and delivers a seamless interface to the computer application, PowerDB Lite (or Pro). PowerDB Lite software is included with the MWA3 Series.

Typical end users of the MWA3 Series include power utilities, electrical testing companies and field commissioning, service and maintenance personnel.

Enquiries: www.megger.com or mesales@megger.com



Keep the systems running. OVR QuickSafe surge protection.

With the new OVR QuickSafe (QS) range ABB offers a new generation of surge protective devices (SPD) to protect residential and industrial buildings against transient voltages. Thanks to the innovative technology of this new range of OVR no dedicated back-up protection is required for selected applications. QS technology increases the rated current in the power system so that the main upstream protection up to 125A MCB (B or C characteristics) or 160A fuse (gG or gL) can be applied. Compliant with the IEC/EN 61643-11 standard, the OVR QS range is the ideal choice to simplify maintenance and increase the safety of installations. abb.com/lowvoltage





ALUMINIUM OFFERS BENEFITS IN TRANSFORMER WINDINGS



An aluminium bus bar.

WHILE copper has been assumed to be the material of choice for transformer windings, global specialist WEG Transformers has successfully manufactured thousands of transformers with aluminium windings.

An important factor behind this option is the likely future increase in the price of copper, as worldwide reserves of the metal gradually decline. While copper reserves are currently estimated at 5.6 billion tonnes; the reserves of bauxite, from which aluminium is generated, are more than 13 times greater at 75 billion tonnes.

The price of copper has fluctuated greatly in the past and has recently risen much faster than the price of aluminium, making the winding of conductors with aluminium increasingly attractive.

After years of testing, it has been established that there are no significant differences between the use of aluminium windings and copper windings in designing and manufacturing distribution transformers, as well as small to medium power transformers. Either metal gives the transformer the same quality of operation and performance.

The use of aluminium in transformers began as early as the

Second World War when industry experienced a shortage of copper, which was in huge demand for the arms industry. By the 1960s, when copper prices rocketed due to high demand, aluminium again became popular in windings; previous technological problems were overcome, and these transformers became more reliable.

Since 1970, aluminium has been used intensively in the United States and the technology of aluminium-wound transformers was further enhanced; it has now gained widespread acceptance in European countries and other parts of the world.

One of the myths that have been disproved is the belief that aluminium-wound transformers have bigger losses of electricity. While the aluminium conductors are larger than copper conductors, they are lighter; the result is that the mass of the core in an aluminium transformer is 5 to 20% more, but the total transformer mass is almost the same – for the same level of electrical loss.

With regard to the respective thermal properties, aluminium has a lower melting point than copper but it is still well above the real working temperatures of the windings. In normal circumstances, the 'hot-spot' temperature in the windings is between 105 °C and 120 °C, while aluminium only melts at 665 °C.

More importantly, the lower thermal conductivity of aluminium does not affect the performance; the temperature differences in the conductor are negligible in relation to the temperature difference between the ambient air and the windings. Also, as a result of the difference in the material properties of the two metals, Eddy loss in aluminium winding is 38 % less than in copper with the same volume of conductor.

While there was historically some concern about joining and terminating aluminium – either to itself or to copper – when it was to be used outdoors, these joints and terminations are today made without any problems. Techniques such as bolting, crimping and arc welding under inert gas (with or without refractory electrodes) have undergone severe testing over many years and have been proven.

Enquiries: +27(0)11 723 6000

Differential pressure switches

for air conditioning and ventilation



As energy becomes more expensive, economising becomes more important. A regulated airflow with monitoring for air conditioning and ventilation systems in the domestic and industrial sectors is therefore essential. However, the best regulation can only work accurately if precise data is available. Modern mechanical pressure switches have come a long way in helping air conditioning and ventilation applications.

A good representative of this species is the differential pressure switch SCH-PSB manufactured by Kobold. Differential pressure switches, which have quick responses, high resolution and are maintenance-free, have much to offer at a reasonable price.

Switching ranges for differential pressures from 20 to 1 000 Pascal are available. The scale of the dials is labelled in Pascal. The electrical rating of the standard version is max. 1.0 A / 250 Vac. The cover provides an IP54 protection against splashes.

Practically, it is possible to rotate the cable gland by 120° steps to the base so that the connecting cable can be taken out to offset pressure port. AMP flat plugs 6.3 x 0.8 according to DIN 46244 or plug-on screw terminals for direct connection to open cable ends, establish the electrical connection. The nozzles of the pressure port are provided for 6 mm hoses. The PA-housing has a diameter of 85 mm and is 58 mm high. Standard screws with a head size of 8 mm fit in the moulded notches. Mounting brackets made of metal and hose connector sets are available as accessories.

Fields of application include monitoring air filters, ventilators, industrial cooling air circuits and flow in ventilation ducts; overheating protection for fan heaters; controlling air and fire-protection flaps as well as frost protection for heat exchangers. Kobold is represented locally by Instrotech.

Enquiries: +27(0)10 595 1831

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REGISTERING AS AN INSTALLATION ELECTRICIAN

In a previous contribution I alluded to the difficulties SMME contractors face when it comes to complying with procurement policies from government and private enterprises alike. This is perhaps not as much about the procurement policies themselves as the interpretation of these policies by people running those departments. It is also abundantly clear that the requirements for compliance with safety regulations, for instance, will vary widely for an underground medium voltage cable installation as compared to installing a supervisory control and data acquisition system (SCADA).

Not so for procurement departments. I personally had an experience where a procurement department insisted on the same criteria for safety personnel – now how in heaven's name can you insist on the poor SCADA guy providing you with the names of his fire officer, first aid officer and an evacuation plan? On the other side of the coin, how can you foresee no traffic flow issues, but the environmental officer of the procurement department does not allow any work to take place after sunset or before sunrise when that MV cable needs to cross a busy road? You may ask why the contractor did not install the cable by horizontal drilling techniques. Simple, the said procurement department insisted any cable laying and installation be carried out by means of manual labour. So there you have it ... a human resources department that employs people in the procurement department of a large infrastructure company that clearly do not understand what the heck is happening outside their office windows... or how their office got constructed in the first place.

At least getting yourself registered at the Department of Labour so you can share in building your country is not that ambiguous. Last month we looked at what was required to register as a Single Phase Tester; this time around, we will look at what is required to register as an Installation Electrician. We will have a quick look at what the Occupational Health and Safety Act (Act 85 of 1993) says in the Electrical Installation Regulations of 2009 and then how that regulation (Regulation 11 to be exact) translates to reality.

The Electrical Installation Regulations 2009, Regulation 11 reads as follows:

Regulation 11: Application for registration as a registered person

- (1) An application for registration as a registered person shall be made to the chief inspector in the form of Annexure 5 together with the registration fee prescribed by regulation 14.
- (2) Any natural person who satisfies the chief inspector that he or she –
 - (a) has sufficient knowledge of the rules applicable to electrical installations in the category for which the application is being made; and
 - (b) has appropriate practical experience in respect of the electrical installation, verification and certification of the construction, testing and inspection of the type of electrical installation for which application is being made, shall be registered as an electrical tester for single phase, an installation electrician, or a master installation electrician, as the case may be.
- (3) The chief inspector shall furnish a registered person with the appropriate certificate of registration and enter such registration into the national database.
- (4) A registered person shall on request produce his or her certificate of registration to an inspector, an approved inspection authority for electrical installations, a supplier or any person to whom he or she intends to issue a certificate of compliance.

MAJOR TECH INTRODUCES VETI CONNECTOR BLOCK

MAJOR TECH'S new CMK range of connector blocks is ideal for any modular installation. The blocks offer a fast, safe and easy way to connect terminals without the need for bridging or potential loose connections.

"The Major Tech team is committed to creating a culture of innovation and is always on the look-out for ways to develop new and improved products for the electrical industry," says Rhodam Evans, Major Tech's product specialist. "We know and understand that the contractor's biggest concern and challenge is time, and we continue to focus on simplifying installations and reducing costs".

The new CMK connector block offers an easy to clamp and, when needed, quick release solution, and is available in two-, three- and five-pole. The units are designed with a screwless connection, which is a great time saver for contractors and electricians.

Features:

- Great for modular installations
- Cost-effective
- Tight connection
- Sturdy grip
- Saves time
- Reusable



Enquiries: +27(0)11 872 5500

(5) A registered person shall inform the chief inspector of any changes affecting his or her registration within 14 days after such change.

Now, by reading the above, it is not immediately apparent what is meant by terms such as 'sufficient knowledge' or 'appropriate practical experience' for instance. This we will look at shortly. What is clear, is that if you comply with sub section 11(2) the chief inspector will issue you with your 'wireman's license' as per sub section 11(3). In sub section 11(4) you are reminded that you may be asked to produce your registration at any time. In sub section 11(5) you are instructed to inform the chief inspector if your situation changes drastically enough to warrant de-registration or migration to a different category. I wonder how many instructions the chief inspector has ever received from deceased estate executors to remove someone from the national database.

Now let us interpret the requirement stated in Regulation 11 for an...

INSTALLATION ELECTRICIAN

OPTION 1

2.1 A candidate must have or comply with:

- 2.1.1 Minimum Integrated Practical and Theoretical Qualification
 - (a) Achieved a National Certificate in Electrical Engineering: NQF level 4 issued by the EWSETA.
 - (b) Submit documentary proof of successful completed unit standards on inspection, testing and certification of three phase industrial/commercial installations as prescribed by the EWSETA.

2.1.2 Knowledge of Statutory Requirements

Submit proof of knowledge on the legislation and relevant health and safety standards applicable to electrical installations by having passed the subject Installation Rules (based primarily on SANS 10142-1) as administered by the Department of Education.

OPTION 2

2.2 A candidate must have a:

2.2.1 Practical Qualification

- (b) Submit proof of having passed:
 - (i) the prescribed trade test in terms of the Manpower Training Act of 1981 in one of the following trade disciplines:
 - Electrician
 - Electrician (Engineering)
 - Electrician (Construction)
 - Millwright (Electro-mechanical)
 - Lift Mechanic; or
 - (ii) the Chemical Electrical NQF level 4 qualification issued by the Chemical Industries Education and Training Authority (CHIETA).
- (b) Submit documentary proof of successful completed unit standards on inspection, testing and certification of three phase industrial/commercial installations as prescribed by the EWSETA.

2.2.2 Minimum Theoretical Qualification

(a) National N3 Certificate with the following compulsory subjects:

- Mathematics
- Engineering Science or Industrial Electronics

- Electrical Trade Theory or Electro-technology

Or

- (b) Grade 12 (Standard 10) Certificate

- Mathematics

- Science

- Technical - electrical or an equivalent subject that may include an N3 subject

Note 1: The candidate must pass each subject with a minimum of 40%.

Note 2: These minimum theoretical subjects could be a combination of Grade 12 and N3 subjects.

2.2.3 Knowledge of Statutory Requirements

Submit proof of knowledge on the legislation and relevant health and safety standards applicable to electrical installations by having passed the subject Installation Rules (based primarily on SANS 10142-1) as administered by the Department of Education.

And there is a third way ...

OPTION 3

2.3 A candidate must have a:

2.3.1 Theoretical Qualification

(a) Submit a Diploma or Degree in Electrical Engineering:

- T3 Diploma (Heavy Current)
- S4 Diploma (Power Engineering)
- B-Tech Degree
- BSc or B Degree
- Government Certificate of Competency (Factories or Mines)
- (b) Submit documentary proof of successful completed unit standards on inspection, testing and certification of three phase industrial/commercial installations as prescribed by the EWSETA.

2.3.2 Knowledge of Statutory Requirements

Submit proof of knowledge on the legislation and relevant health and safety standards applicable to electrical installations by having passed the subject Installation Rules (based primarily on SANS 10142-1) as administered by the Department of Education.

And there you have it. Your registration as 'wireman' is done and dusted. In a future instalment we will look at the registration requirements for Master Installation Electricians.

Till next time.

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POWERFUL DEMOLITIONS HAMMER FROM BOSCH

Bosch has launched a powerful electric breaker for demolition work in concrete, stone, or asphalt. The Bosch GSH 27 VC Professional has impact energy of 62 joules, with an average material removal rate of 3.2 tons an hour, a 50% increase over the previous model. Another advantage of the breaker is its low vibration of 8 m/s², owing to the vibration-reduced hammer mechanism and decoupled handles. This means the permitted trigger time of the tool is more than three hours per working day.

All these benefits provide professional tradespeople with fast work progress, and more comfortable working conditions, with reduced

vibration, even in the toughest applications," says Campbell Mhodi, Bosch Professional Power Tools senior brand manager.

Durability and superior lifespan are guaranteed thanks to the robust construction, which uses high-quality aluminium and steel components. A new feature is the anti-slip surface on the housing cover, which means the 27 kg breaker can be propped up against a wall conveniently and safely, or against suitable objects between operations, without any danger of falling over.

Enquiries: +27 (0)11 651 9600



Powerful electric breaker from Bosch.

SMOOTH SPEED REGULATION EASY WITH HENGSTLER



The new Hengstler Aculo® AX73 is a class leading optical encoder that offers smooth speed regulation with high levels of precision

The new Hengstler Aculo® AX73 is a class leading optical encoder that offers smooth speed regulation with high levels of precision. Its compact dimensions make it suitable for installation in areas where there are space constraints.

Available from the official Hengstler distributor for southern Africa, Countapulse Controls, this absolute rotary encoder is ideal for ATEX-rated applications. The Aculo® AX73 encoder carries ATEX and IEC Ex certification for gas and dust explosion proof requirements.

The advanced optical encoder offers benefits for myriad applications including on winches, cranes, drill and other oil and gas industry equipment, as well as in paint plants, petrochemical facilities, bottling plants and grain mills.

The connection configuration on the encoder allows the routing of cabling with the encoder installation in separate steps. This provides significant cost and time savings during installation, as cabling can be completed in advance. This type of installation also allows the quick replacement of a spare encoder during maintenance and servicing activities.

Another feature that facilitates ease of maintenance is the use of just two screws for the connection hood. Many comparable encoders use six or even eight screws, while insufficient corrosion protection makes such units difficult to uninstall. Special patented screws are used to protect the unit against dust, water and corrosion.

The optical scanning system provides a highly accurate 22-bit resolution sensor signal for wherever precision or smooth speed regulation is necessary. Despite this high level of accuracy, the encoder itself is robustly designed with excellent resistance to shock, vibration and external magnetic fields. The stainless steel housing is rated to IP 67 protection and can operate in Ex-related ambient temperatures from -40 to +70 °C.

With a housing diameter of only 76 mm, the encoder is ideal for use where space is limited. The encoder can be ordered with SSI, BiSS-B, BiSS-C and Profibus interfaces.

Johannesburg-based, Countapulse Controls has an in-depth understanding of the application of absolute rotary encoders and is able to assist the market in selection of the best fit solution for a given application.

Enquiries: +27 (0)11 615 7556



Spend less time charging batteries and get more work done.

Wireless charging by Bosch.

Ensuring that batteries are ready for use is a thing of the past thanks to Bosch's L-Boxx. A 2.0 Ah battery can be 100% charged in 45 minutes, allowing tradespeople to work without interruption – even in demanding and time-consuming tasks.



Bosch Professional Power Tools SA



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www.bosch-pt.com



RS PRO RANGE BOLSTERED BY OVER 500 TEST AND MEASUREMENT PRODUCTS

RS COMPONENTS (RS) has added to its RS Pro range more than 500 professional, affordable products for the test and measurement market. The products, which previously formed the ISO-Tech range, have been rebranded to strengthen the

own-brand portfolio of more than 40 000 high-quality competitively priced industrial products and electronic components.

The move represents a final consolidation of all of the RS own-brand products under the RS Pro

branding, which launched in February 2016 and has been built up to offer a combination of quality, performance and value. All products in the range are backed by the RS Seal of Approval, which represents leading industry standards for audit, inspection, test and certification.

The ISO-Tech products that have transitioned to the RS Pro range offer rugged design and highly accurate measurement and include: water-resistant multimeters; digital light meters; sound-level meters; and high-performance digital oscilloscopes offering advanced functions that are generally found on more expensive test equipment. All the products come

with a warranty that covers the purchaser against defects in material and workmanship for up to three years.

Kurt Colehower, president of RS Pro, said: "The rebranding of ISO-Tech to RS Pro is a direct response to our customers' needs. As RS Pro, we are tailoring our test and measurement product range to meet customer requirements and taking the opportunity to expand the range."

Enquiries: www.rspro.com



INTELLIGENT EARTH FAULT PROTECTION RELAY

THE NL75 is a compact, feature-filled, din-rail/surface mounting relay designed with the maintenance technician in mind. Tamperproof dipswitches allow six sensitivity settings between 30 mA and 3 A; five trip delay settings between 20 ms and three seconds; and four trip relay operating modes. Should anyone tamper with the dipswitches or not follow the setting up procedure, the relay will trip. The relay has a fitted core balance with a 28 mm diameter window. Remote core balance current transformers are connected to the relay terminal strip. A green LED indicates correct

relay function while a red LED flashes a trip condition as displayed on the relay faceplate.

Additional features include:

- Auto-ranging control voltage 24 to 240 Vac/dc.
- Remote pushbutton reset feature.
- Remote core balance current transformer open circuit trip.
- Pull-apart control terminals.
- Door mounted, self-powered LCD display unit accessory.
- Relay healthy test facility.

The unit is available from DRH Components, a specialist electric component supplier



to the industry with a focus on the control and protection of electric motors.

Enquiries: +27(0)74 331 0005

FIVE SAFETY RULES RECOMMENDED BY DEHN AFRICA

Working on electrical installations can be dangerous since electrical installations that are not properly connected or maintained pose a serious risk to people and property, and can lead to injuries or even death. For this reason, DEHN Africa has adopted five safety rules according to the German standard series DIN VDE 0105 to help prevent electrical accidents.

DEHN offers innovative products and solutions as well as comprehensive services in the field of surge protection, lightning protection and safety equipment. The company focuses on the protection of system and building technology; the transportation, telecommunication and process sector; photovoltaic systems and wind turbines.

Enquiries: +27 11 704 1487

Step 1: Disconnect completely

When working on an electrical installation, it is best to ensure that it is disconnected from live parts on all poles.



Step 2: Secure against reconnection

To prevent an accidental reconnection of an installation where work is in progress, replace the unscrewed fuses in the low-voltage system with lockable lockout devices, or ensure that all breakers on the off position are locked and adequate warnings are placed.



Step 3: Verify that the installation is dead

Use suitable test equipment such as a voltage detector to verify on all poles that the installation is dead. Also, check the correct function of the voltage detector prior to using it.



Step 4: Use earthing and short-circuiting devices

After verification, connect the cables and the earthing system with short-circuit-proof earthing and short-circuiting devices. It is important to ensure that the relevant parts are earthed before they are short-circuited. Only after successful application of the earthing and short-circuiting devices can the installation be considered dead and safe to work on.



Step 5: Provide protection against adjacent live parts

According to the five safety rules, adjacent parts are located in the vicinity zone. If parts of an electrical installation in the vicinity zone of the work location cannot be disconnected, additional precautions must be taken before work is resumed. In this case, it is essential to use insulating protective shutters or covering material as protection against any accidental contact.





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A GREAT RULE OF THUMB AND THE PERMIT SYSTEM

In my previous column, I mentioned that Kevin Welch of UIC Automation had sent me an email in which he pointed out that I had made a mistake in a previous column. I'd given the full load current of a three phase 22 kW motor as 72 amps when it is in fact about 40 amps. Subsequently, Daan Coetzee of Gobabis Electrical has also written to me to point out the mistake and usefully further noted that the line current of a three phase motor is just about equal to the motor kilowatts x 2. Thus a 22 kW motor full load current is ~ 44 amps. Great rule!

About 30 years ago I was working on the medium voltage switchgear in a sugar mill. We were working on one of the sub-switchboards fed from the main board. I had tripped the main board circuit breaker, racked it down and locked the shutters. I took the fuses out of the closing circuit and kept them. I unplugged the auxiliary closing relay and put it in my pocket. I put a big sign on the panel door which read 'Electricians

working online do not operate' and went to the sub-switchboard.

Come tea time we strolled to our caravan. We had to pass the main substation. As we did so I heard a 'clunk ... clunk ... clunk' and went to take a look. I found, to my astonishment, that my danger sign had been discarded on the floor; the main board breaker had been racked up; the shutter lock cut off and the fuses of the closing circuit replaced. All that had saved my life and the lives of two electricians was the auxiliary closing relay in my pocket. The 'clunk ... clunk ... clunk' was the remote close relay operating – but, without the auxiliary closing relay the circuit breaker could not close. The electricians and I reacted with all the anger that people feel when somebody is trying to kill them. We strode to the main control room where the operator, using the remote control on the mimic panel, was still trying to get the main circuit breaker to close. Furious, we asked him

what he thought he was doing. Wordlessly, his finger shaking, he pointed in the direction of the senior control room operator, at that moment discussing something with a man we subsequently discovered was the general manager of the sugar mill.

I was too angry to care. I strode up to the senior control room operator, grabbed him by the shoulder, pulled him round and asked him why he was trying to kill us. I said he had given instructions to close the main incoming circuit breaker while we were working on the circuit. He said something about having to get the mill running and having no electrical power. He had instructed the electrical foreman to close the main incoming circuit breaker by whatever means. Only by my super-cautious unplugging of the auxiliary closing relay had we been saved from disaster.

All of this brings us to the current use of a 'permit system'. In this arrangement, the senior operator issues permits to work on various items

of the plant and then arranges for the work to be conducted in the safe manner by isolating valves, electrical supplies, compressed air, et cetera. The artisan doing the work carries the permit on her/him. When the work is finished the permit is returned to the senior operator who signs it off and allows the item of plant to be returned to service.

All is safe if this procedure is followed. But shifts change; the operator who issued the permit is not necessarily the one who signs it off and in large-scale shutdowns the permit system gets overloaded. Some industries deal with this by giving each artisan a padlock which he or she uses to lock the electrical circuit out by locking a locking bar – other artisans working on the same item of plant can apply locks. Thus only when each artisan has removed his or her lock can the plant be started. It's good but it's not fool proof.

Next month: Permit hacks: the 100% safe permit system.

FUEL-FLEXIBLE POWER PLANT BRINGS VITAL ENERGY BOOST TO GHANA

GE, the world's premier digital industrial company, has announced the order of a 200 MW combined-cycle power plant to be operated by Amandi Energy Ltd in Aboadze, Ghana. The plant will help to add reliable and efficient capacity to the grid to tackle Ghana's increasing demand for power. The plant's construction will be overseen by Metka, a leading international engineering contractor.

This turnkey plant will be powered by GE's 9E.04 gas turbine with tri-fuel capabilities. Initially fuelled by light crude oil, the switch will be made to indigenous gas from Ghana's offshore Sankofa natural gas field once available.

"GE's fuel capabilities are unmatched. Having a turbine that is able to switch between fuels can provide increased plant operability allowing for power generation months before the indigenous gas supply would otherwise be available," said Boaz Lavi, GM for Amandi Energy Ltd, Ghana. "This is crucial in helping Ghana meet its growing power needs."

GE will also provide the steam turbine, heat recovery steam generator (HRSG), associated balance of plant, and seven-year CSA. Once operational, the 200 MW plant will be one of the most efficient power plants in the country and will generate the equivalent power needed to supply more than one million Ghanaian homes.

"Our customers have complex fuel needs, and this project illustrates the breadth of solutions we are able to deliver to meet their expectations," said Leslie Nelson, GM Gas Power Systems at GE Power in Sub-Saharan Africa. "We are pleased that our strong regional presence allows us to get power to our customers, like Amandi Energy, quickly and efficiently."

The rugged 9E can burn more than 50 types of fuels and can switch between natural gas, distillate and heavy fuel oil while operating under full load. GE's 9E.04 has multiple features that help reduce fuel costs and increase revenue, such as a 145 MW output and 37 percent efficiency in simple-cycle. GE has more than 3000 E-class turbines installed throughout the world with 143 million combined operating hours.

GE works with the government, corporate customers and other stakeholders in Ghana to support economic growth through infrastructure development in the power, healthcare and transport sectors. In 2014, GE opened a 200-capacity permanent office in Accra, and now has over 80 employees - 95% of which are Ghanaians.

Enquiries: www.GE.com

SMALLEST REGULATED 9 W DC-DC CONVERTERS

XP POWER has launched its ITZ series of compact regulated 9 W dc-dc converters. Believed to be the industry's smallest 9 W dc-dc converters, the units accommodate an ultra-wide 4:1 input and are available with single and dual outputs. Packaged in an ultra-compact metal cased SIP-8 package measuring just 21.9 x 11.2 x 9.6 mm, the converters are up to 89% efficient and have a power density of 44 W per cubic inch. With its high efficiency, no additional heat sink components or forced airflow are required, ensuring that the converter occupies the smallest footprint possible, a key criterion of space constrained designs.

The series offers two 4:1 input range options of either + 9 to + 36 Vdc or + 18 to + 75 Vdc, covering all popular nominal input voltages of + 12, + 24 and + 48 Vdc. Single output models are available with + 3.3, + 5, + 9, + 12, + 15, or + 24 Vdc. Duals provide +/- 5, +/- 12 or +/- 15 Vdc. No minimum load is required.

Input to output isolation is rated at 1.5 kVdc across the range, and, optionally, 3 kVdc isolation is available on -H models. Suitable for use in most environments, the ITZ series can operate across the extended temperature range from - 40 to + 85 °C and deliver full output power up to +60 degrees. A remote on/off function provides the ability to externally control the converter such as for sequencing start-up or automatically powering it on or off. All models meet EN55032 level A for conducted and radiated noise without any additional components.

Typical applications for the ITZ series include mobile, portable and wireless products and any low power use case where isolation and dc voltage conversion are required. The series is available locally from Vepac Electronics and comes with a three-year warranty.

Enquiries: +27 (0) 11 454 8053



Ensure that your electrical components and appliances are SABS compliant



Sub-standard electrical products and services can cause fire, injury and death. The latest available statistics indicate that over 3500 fires yearly are classified as 'electrical'. Fires may be caused by using sub-standard electrical products, by employing incompetent contractors to carry out electrical installations or both.

- Be aware that there are many sub-standard products and services on offer in South Africa.
- Membership of the SAFEhouse Association is your assurance of a code of conduct that demands compliance with regulations and responsible behaviour.
- It has become clear that the need for correct copper cabling and quality components in your home is indisputable.
- Copper is the most efficient ELECTRICAL conductor available.

COPPER THEFT

Copper theft has become a very lucrative market. The key driver of copper-cable theft is the rising demand for the metal as a result of excellent prices being offered by overseas consumers. The Copper Development Association Africa is passionate about copper and cares about our market. R11m worth of copper is stolen every month.

Our action plan is to see the following happen:

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NEW RANGE OF RUGGED BATTERY CABINETS

A new range of battery cabinets has been released by power provisioning specialist, Powermode. The locally-manufactured units are marketed under the Q-on banner and are suitable for applications ranging from solar PV to uninterruptible power supply (UPS) and self-consumption systems.

According to Jack Ward, MD of Powermode, the safe storage of batteries is important from safety as well as space-saving perspectives. "General hazards related to energy storage include chemical leakage and fire dangers as well as the possible escape of non-flammable gases when charging or discharging certain batteries."

He says the Q-on cabinets, which are manufactured from rugged, durable steel to the highest standards and come with a class-leading quality guarantee, are available in four standard sizes (A8, A12, A16, A20) to suit a wide range of stand-alone or mobile requirements.

The compact, space-saving cabinets feature multiple, removable shelves and they come with a built-in battery switch breaker for battery isolation.

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MANUFACTURERS	CONTACT	SOLAR LIGHTING	SOLAR (PASSIVE) SPACE HEATING
ABB South Africa Aberdare Cables ACDC Dynamics Aurora Lighting BEKA Schréder Bellco Crabtree Electrahertz eltherm South Africa Genlux Lighting Invirotel Legrand Megger OSRAM Lighting Phambili Interface Power Panels and Electrical Power Process Systems Schneider Electric Shuttle Lighting Control Systems Superlume Voltex Voltex Lighting Waco Zest WEG Group	Bellco Fred Wilson Citilec Jeff Forman Crabtree Sales Electrahertz Marius Meyer (Jhb) Frank Proude (Pta) ElectroMechanica Artur Socha eltherm South Africa Rachel Paterson Envirolight Mark Rice Eurolux Sales Genlux Lighting Glen Hill Invirotel Modishane Sebona JDL Electric Shaun Singh Legrand Johan Bosch Magnet Group Samantha MacDonald Major Tech Werner Grobbelaar MCE Electric Sales Megger Nathaniel Folscher OSRAM Lighting Eric Hall Phambili Interface Steve Lea Power Panels and Electrical Andy van der Merwe Power Process Systems Michael du Toit Radiant Group Alfred Weldon Schneider Electric Sales Shuttle Lighting Control Systems Tracey Steyn Superlume Willie Garbers Voltex Hugh Ward Voltex Lighting Marc Rudman Waco Jaco Coetzee Zest WEG Group Sales	ACDC Dynamics Full range of solar lighting ARB Electrical Wholesalers Complete outdoor range of solar flood lights, street lights, garden lights and bollards Citilec Full range of solar lighting Electrahertz Range of solar lighting Eurolux Extensive range of solar lighting products Genlux Lighting Range of solar lighting products JDL Electric Full range of solar lighting Magnet Group Full range of solar lighting Radiant Group Full range of solar lighting Superlume SKY-range of solar flood lights and solar brick lights Voltex Full range of solar lighting Waco Full range of solar lighting	JDL Electric Range of solar (passive) space heating SOLAR WATER HEATING
DISTRIBUTOR		SOLAR (PHOTOVOLTAIC) ELECTRICITY GENERATION	ACDC Dynamics Solcraft range of solar geysers as well as a range of SABS approved solar geysers ARB Electrical Wholesalers Complete range of solar geysers JDL Electric Range of solar water heating Solid State Power A range of solar geysers Voltex Range of solar water heating Zest WEG Group Range solar water heating
ACDC Dynamics ARB Electrical Wholesalers Aurora Lighting Bellco Citilec Electrahertz ElectroMechanica Envirolight Eurolux Genlux Lighting Invirotel JDL Electric Magnet Group Major Tech MCE Electric Phambili Interface Radiant Group Superlume Voltex Voltex Lighting Waco Zest WEG Group	Magnet Group Samantha MacDonald Major Tech Werner Grobbelaar MCE Electric Sales Megger Nathaniel Folscher OSRAM Lighting Eric Hall Phambili Interface Steve Lea Power Panels and Electrical Andy van der Merwe Power Process Systems Michael du Toit Radiant Group Alfred Weldon Schneider Electric Sales Shuttle Lighting Control Systems Tracey Steyn Superlume Willie Garbers Voltex Hugh Ward Voltex Lighting Marc Rudman Waco Jaco Coetzee Zest WEG Group Sales	ABB South Africa Solar electricity generation Aberdare Cables Solarflex, Solardac, Lotox Bells & Mains ACDC Dynamics Full range of solar panels and all accessories for mounting and usage ARB Electrical Wholesalers Complete range of solar panels and inverters; specialists in cable and wire, MC4 connectors and racking; finance available for complete solutions Cabstrut Full range of solar panel mounting solutions Electrahertz Range of inverters JDL Electric Solar electricity generation Magnet Group Solar (photovoltaic) electricity generation MCE Electric Onesto dc isolators, circuit breakers and photovoltaic power board Phambili Interface Full range of DC Combiner boxes and accessories Voltex Full range of panels, accessories and mounting solutions	JDL Electric Range of solar heat pumps SOLAR HYBRID SYSTEMS
CONTACT		SOLAR (PHOTOVOLTAIC) WATER PUMPING	ACDC Dynamics Range of solar batteries ARB Electrical Wholesalers Complete range of solar deep cycle batteries, lithium iron, flow cell technology Electrahertz Range of solar batteries ElectroMechanica Range of solar batteries JDL Electric Range of solar batteries Magnet Group Range of solar batteries Radiant Group Range of solar batteries
ABB South Africa Customer contact centre Aberdare Cables Jyoshtie Dhunes ACDC Dynamics Elmari ARB Electrical Wholesalers Sales Aurora Lighting Warwick Webber BEKA Schréder Sibusiso Skosana	Aberdare Cables Solarflex, Solardac BEKA Schréder Full range of solar lighting	ABB South Africa Range of solar water pumps ACDC Dynamics Range of solar pumps and solar pump kits ARB Electrical Wholesalers Full range of solar water pumps JDL Electric Range of solar (photovoltaic) water pumps	ARB Electrical Wholesalers Complete range of industrial panel air conditioners and inverter and non-inverter air conditioners Bellco Full range of air conditioners JDL Electric Range of air conditioners Radiant Group Full range of air conditioners Voltex Full range of air conditioners





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Full range of air conditioners

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Electrahertz
Range of heaters

eltherm South Africa
Electrical heat tracing, heat trace cable

JDL Electric
Range of heaters

Magnet Group
Range of heaters

MCE Electric
Onesto Oracle range thermostat/underfloor heating wiring accessories; MCE temperature controllers and thermocouples

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O-Lite dc day/night switches; O-Lite range of energy saving occupancy sensors, micro sensitive sensors and LED light fittings; Onesto Oracle range of indoor and outdoor wiring accessories

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NEW POWER QUALITY AND MOTOR ANALYZER

The Fluke 438-II Power Quality and Motor Analyzer adds key mechanical measurement capabilities for electric motors to the advanced power quality analysis functions of the Fluke 430 Series II Power Quality Analyzers. They measure and analyse key electrical and mechanical performance parameters such as power, harmonics, unbalance, motor speed, torque and mechanical power without the need of mechanical sensors.

The 438-II is the ideal portable motor analysis test tool, locating, predicting, preventing, and troubleshooting power quality problems in three-phase and single-phase power distribution systems, while giving technicians the mechanical and electrical information needed to effectively evaluate motor performance. Key capabilities include:

- Measure key parameters on direct-on-line motors including torque, RPM, mechanical power and motor efficiency.
- Perform dynamic motor analysis by plotting motor de-rating factor against load according to NEMA guidelines.
- Calculate mechanical power and efficiency by connecting to the input conductors.
- Measure electrical power parameters such as voltage, current, power, apparent power, power factor, harmonic distortion and unbalance to identify characteristics that impact motor efficiency.
- Identify power quality issues such as dips, swells, transients, harmonics and unbalance.

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The Fluke 430 Series II Power Quality Analyzers are FLUKE CONNECT® compatible, which means users can view data locally on the instrument via Fluke Connect mobile app and PowerLog 430-II desktop software. The Series is safety rated for industrial applications – 600 V CAT IV/1000 V CAT III rated for use at the service entrance and downstream.

Fluke is represented in southern Africa by the Comtest Group.

Enquiries: +27 (0)10 595 1821

LOGO!POWER SUPPLY DEVICES FOR UP TO 100 W IN ULTRA-NARROW DESIGN

With the 4th generation of Logo!Power, Siemens has extended its power supply portfolio to include two additional power supply devices as well as additional functionalities and new scope for application. This series of compact devices now comes with a narrower width reduced by 18 mm, allowing more flexible mounting, for instance on DIN rails in distribution boards, or directly on walls or ceilings. They can be mounted gaplessly side-by-side with other devices, for instance to supply power to adjacent Logollogic modules. With efficiency of up to 90 percent over the entire load range, and no-load losses of less than 0.3 W, the power supply devices offer outstanding energy efficiency both in standby and running operation.

The integrated current monitor provides a new level of convenience during commissioning and servicing. The current output is read out in real-time as a voltage value using a measuring point. Simple measurement using a voltmeter means that the disconnection of cables by the user for conventional current measurement is no longer required, and the system continues to be supplied



PLUG INTO THE LATEST TECHNOLOGY

THE SOUTH AFRICAN ELECTRICAL INDUSTRY now has access to some of the latest international technology, thanks to leading distributor ElectroMechanica of Johannesburg. This includes the Xenia series of industrial plugs and sockets and the Optima-Top series of industrial surface-mounting socket outlets from SCAME Electrical Solutions.

ElectroMechanica specialises in bringing the latest brands and trends to the local market and examples of this are some of the products from SCAME Electrical Solutions of Italy, of which it is the exclusive distributor.

The Optima-Top and Xenia series comply with the Low Voltage Directive 2014/35/EU, which requires the addition of the manufacturer's address, with a new label to replace the old ones used for plugs, connectors and inlets, in addition to laser etching used for flush mounting sockets.

The new label has been placed on the caps of the sockets, which have been modified slightly as a result. The larger label not only contains the additional information, but also a clearer barcode for enhanced product management.

The Xenia series has an insulation voltage of 500 V ac, and is offered with an IP44 protection rating for enhanced safety. The operating temperature is -25 to +40 °C, and the glow wire test is 650/850 °C. Material of construction is halogen-free engineering plastic, with an IK08 impact resistance (1.7 kg with a

striking energy of 2 J). The cable inlet is in the form of a cable sleeve.

The Optima-Top series has an insulation voltage of 500/690 V, and is offered with an IP44 to IP66/67/69 protection rating for enhanced safety. The operating temperature is -25 to +40 °C, and the glow wire test is 650/850 °C. Material of construction is halogen-free engineering plastic, with an IK08 impact resistance (1.7 kg with a striking energy of 2 J).

"These world-class plugs and sockets not only offer the latest in technology and regulatory compliance but, more importantly, are price-competitive. In addition, the main focus is to ensure safe and reliable operation in all circumstances, which enhances the overall efficiency. The products have been designed with ease-of-use in mind, which makes them highly suited to African operating conditions," says sales and marketing director Richard Nobbs.

Enquiries: +27 (0)11 249 5000



DIRECT CONNECTORS FOR HIGH CONTACT DENSITIES

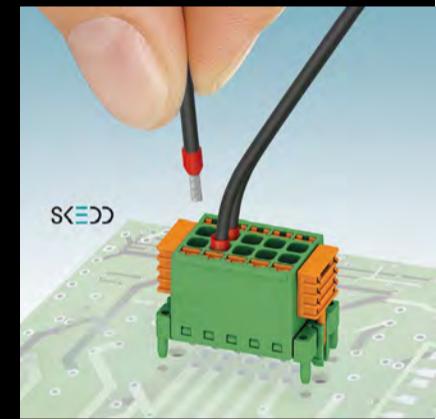
Phoenix Contact is extending its range of convenient PCB connectors with SKEDD technology. The SDDC 1,5 double-row direct connectors allow 2 to 32 conductors to be connected. This makes them ideal for applications with a high contact density,

The SKEDD direct connection technology enables connectors to be connected directly to the PCB via through-contacted bore holes, without the need for any tools or an additional header. As users no longer need one of the components, overall process costs are reduced.

The SDDC 1,5 connector range with a pitch of 3.5 mm is suitable for conductor cross sections from 0.2 mm² to 1.5 mm² and is designed for currents up to 8 A and voltages up to 160 V (IEC). Just like all SKEDD direct

connectors, the new series, which has a pitch of 3.5 mm, offers the convenient Push-in spring connection.

Enquiries: +27 (0) 11 801 8200



with direct voltage without interruption. Users also benefit from a new downward extended operating temperature range of -25 to +70 °C, and scope for worldwide application with a wide range of certifications.

The innovated Logo!Power series with its housing widths of 18 to 72 mm is the compact successor to the previous 3rd generation. The new variants with 24 V/0.6 A and 12 V/0.9 A extend the portfolio for very small outputs and come in a width of just one 18 mm pitch. A total of eleven

devices with regulated and adjustable output voltages of five, 12, 15 and 24 V supply an output of up to 100 W. Their wide-range input allows these power supply devices to be operated at all single-phase supply networks with 110 to 240 V ac nominal voltage and even at direct voltage networks with 110 to 300 V dc without the need to switch over. For capacitive loads on power supply start-up, a power reserve of 150 percent is available, and the constant current behaviour compensates for overloads during operation. A diagnostic LED signal 'dc OK' indicates the status of the power supply device.

Fields of application for Logo!Power in industrial automation include simple packaging machines, garbage presses, conveyor belts, sorting systems, infeed units and sterilisers. In the field of building technology, the power supply devices can be used for lighting controls, such as panic circuits, central and random circuits, heating control system extensions, door and gate controls, and access restriction. Logo!Power devices are also found in pumping stations, special-purpose vehicles, saunas, swimming pools and automatic livestock feeding devices.

Enquiries: www.siemens.com/logo-power



PULL UP POWER TOWERS FOR MODERN KITCHENS

RHODAM EVANS, product manager at Major Tech believes firmly that in today's competitive market, sockets and switches are more than just practical solutions for everyday applications. "In the past, people didn't place too much emphasis on the installation of socket outlets," he says. "South Africans accepted that adaptors and extension cords were necessary in order to use any products with different plug tops, such as the common two-pin. Today, customers are far more 'switched-on' and aware of the available options when it comes to decorating their homes."

Kitchens are no longer used solely for cooking. Island units have become multifunctional spaces where family members use their digital devices; kids complete their homework; and friends sit for a chat. With this shift towards multifunction use, the need for suitably positioned, accessible power socket outlet plug points in handy places is essential. "Architects and contractors," says Evans "have had to accommodate market requirements and become more adaptable with the solutions they provide their clients."

Major Tech offers the VETI Pull Up Power Tower range as a solution to having exposed electrical sockets in the kitchen. The tower has an innovative patented design that offers functionality and allows it to be hidden, even when in use. A spring-loaded handle makes pulling it up easy and enables the user to assemble electrical and data connections and then push the tower back down with all the wires connected.

The VETI Pull up Power Tower range has a two year guarantee and is available as a preassembled offer for standard installations. The range comes standard with 2 x RSA V-Slim™ socket outlets, 2 x RSA standard socket outlets, 1 x thermal overload switch and a 1.6 m standard SA plug extension. In addition, VPT2 and VPT3 come standard with dual USB chargers that can charge USB devices up to 2.1 A including smartphones, iPads, tablets and cameras.

Features and advantages:

- Patented design allows the tower to be hidden when in use.
- Spring-loaded handle.
- Strong aluminium housing.
- USB outlet can charge USB devices up to 2.1 A.
- Power and data/telephone in the same housing.

Enquiries: +27 (0)11 872 5500 or www.major-tech.com

DIRECT DISTRIBUTION AGREEMENT

SIGNED WITH SWITCH MANUFACTURER

RS COMPONENTS (RS), the trading brand of Electrocomponents plc, has signed a direct distribution agreement with C&K, one of the world's largest tactile switch manufacturers, and also renowned for its board-mounted toggle switches.

RS currently stocks hundreds of C&K switches, including tactile switches, pushbutton switches, toggle switches, rotary switches, key switches and switch locks, DIP and SIP switches, slide switches and detector switches. Over the next six months, RS intends to double its C&K switch offering, focusing first on the most recent and innovative products, as well as strengthening support for its entire C&K portfolio through the new direct working relationship. Electronic design engineers, buyers and contract electronics manufacturers (CEMs) will soon have access to technical data on over 23 400 C&K switches through the RS Product Data Library. RS will make its range of C&K products available in large-quantity packaging to help customers find the product they need in the packaging they want.

Enquiries: +27 (0)11 691 9345



From left: Eric Smith, Head of Product Management IP&E, RS Components; Serge Veld, Director of Distribution, C&K; Steve Keep, Global Product Group Manager - EMECH, RS Components.



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Offers single and 3 phase class two protection up to 40,000 amps of network based surges.

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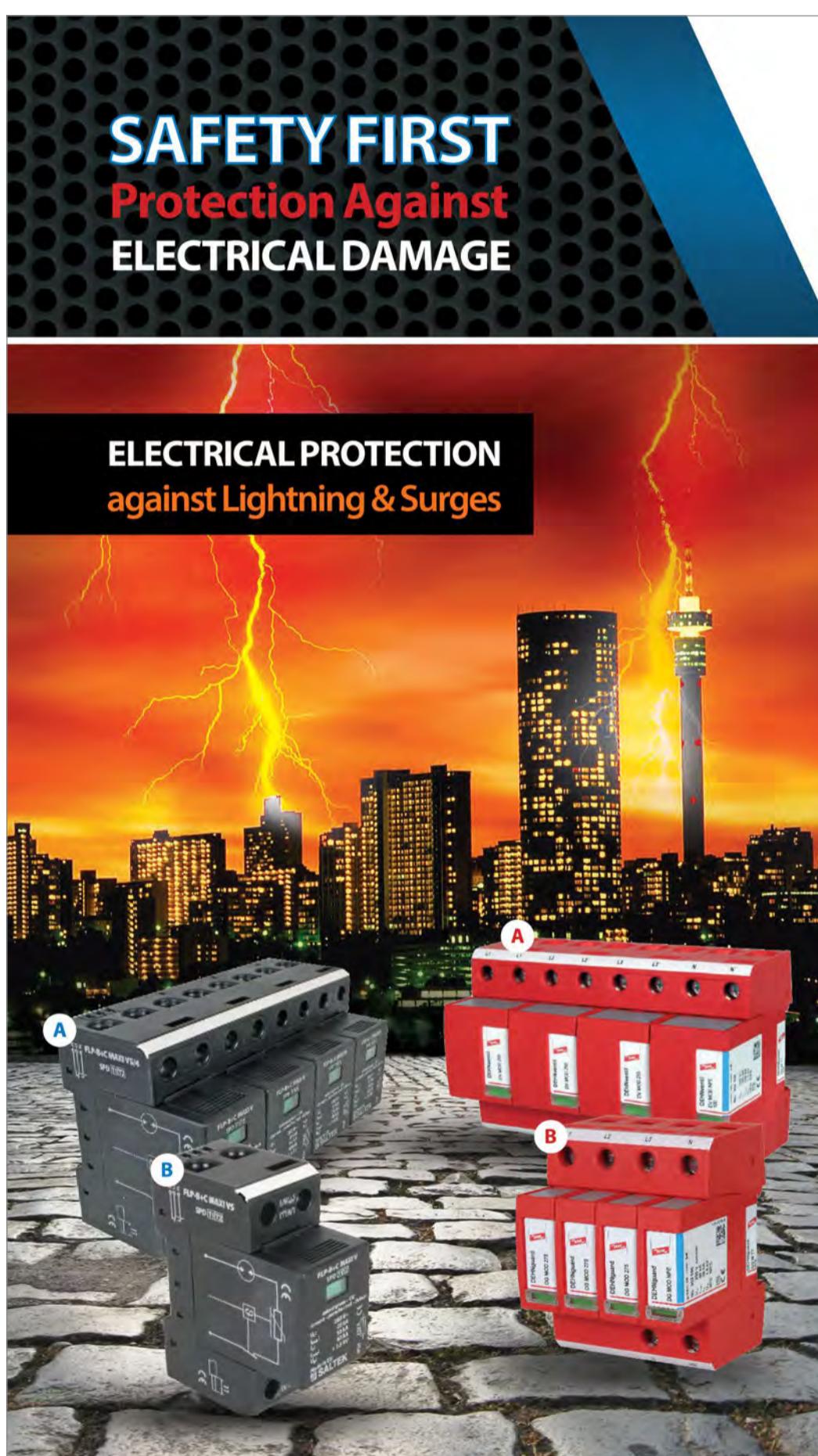
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B. PROTECTING SECONDARY DISTRIBUTION SALTEK SLP-275V/3S+1

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SCHNEIDER ELECTRIC SOUTH AFRICA INTENSIFIES FOCUS ON ENABLING BLACK INDUSTRIALISTS

SCHNEIDER ELECTRIC, a global specialist in energy management and automation, has signed an agreement with BSA Holdings as part of its global Alliance Partner Programme for the Energy sector. Schneider Electric South Africa has localised this global initiative in order to identify, support and effectively transfer energy management and automation skills.

The agreement forms part of Schneider Electric's endeavour to spearhead black industrialisation as outlined by the Department of Trade and Industry. BSA Holdings is a South African company based

in Witbank. Established in 2014 to serve the African market, the company's diversified business includes interests in food, power and water utilities, oil, gas, mining and the manufacturing industries. The agreement will see BSA Holdings customise the innovative smart grid ready Premset and PIX RoF medium voltage (MV) switchgear products as part of its electrical power distribution solution for the country's major utilities.

Schneider Electric's Alliance Partner Programme serves to bring majority black owned industrialists to public notice where they can contribute as system

integrators, and solution and service providers, while playing the role of preferred manufacturers in the energy automation and management industry.

"Schneider Electric's role within the context of this agreement is that of an enabler or a facilitator — we want to ensure that BSA Holdings becomes a partner that participates fully in this industry so training, technology and product integration is executed by our Alliance partners," said Dudley Miller, Energy business vice president, adding that the initiative was really about "true empowerment through skills transfer and development".



With more than 235 service centres in 72 countries and millions of MV units installed worldwide, Schneider Electric is the ideal partner for entities like BSA Holdings. Sandile Ferreira, group chief executive at BSA Holdings, said that for global companies to partner with local industrialists was a decision which benefitted not only BSA Holdings but also the economy of the country.

"As we know," said Ferreira, "unemployment is high in our country and through this partnership we can use Schneider Electric's products and solutions to modernise some of the old facilities and plants with cutting-edge technologies that are safe, reliable, energy efficient and environmental friendly. This will also allow us to focus on creating employment and empowering the people of Witbank and addressing the unemployment challenges of the country".

Enquiries: www.schneider-electric.co.za

Take the trouble out of troubleshooting.



MPQ1000

The Megger MPQ1000 Power Quality Analyzer is Class A compliant and rated CATIV at 600V. It can be used for a wide variety of applications including substation monitoring, equipment and breaker tripping, load studies and balancing as well as for switchgear and component failure.

Some of its features include:

- Automatic CT recognition
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INTELLIGENT INVERTER SOLUTIONS

New to Magnet's range of components for solar power systems are SolarEdge intelligent inverter solutions that enhance the performance of clean, renewable solar energy in residential and commercial solar photovoltaic installations, and in small utility-scale solar installations.

"SolarEdge technology - which optimises the way power is harvested and managed - consists of power optimisers, inverters, storage solutions and a cloud-based monitoring platform," explains Ryan Grover, head of Projects, Magnet Energy. "The SolarEdge direct current (dc) optimised inverter system maximises power generation at the individual PV module level, while lowering the cost of energy produced by the solar PV system."

"Apart from new installations, this system has also been designed for safe and easy retrofit, to extract more energy from existing under-performing PV systems. By replacing the conventional inverter with a compact and lightweight SolarEdge inverter and adding power optimisers to every module on the roof, efficiency of the PV system is improved."

For additional safety, the system has a module-level voltage shutdown mechanism, where the PV array is reduced to a safe dc voltage in the event of ac shut down during installation, maintenance, firefighting and other emergencies. Built-in module-level monitoring provides full visibility of system performance, fault detection and remote troubleshooting via an easily accessible cloud-based monitoring platform. This system also indicates exactly how much more energy the upgraded system is producing.

Unlike conventional PV installations, where string inverter systems lower output to the level of the lowest performing module, the SolarEdge system alleviates power losses as a result of mismatch between modules and extracts the maximum energy from every module, regardless of the performance of other modules in the string. With this system, weaker-performing modules do not affect strong ones. The higher the mismatch is between modules in a system, the greater the energy that can be retrieved by retrofitting it with a SolarEdge system.

Enquiries: +27 (0)31 274 1998



ABB RENEWS ITS COMMITMENT TO UN ENVIRONMENT INITIATIVE ON ENERGY EFFICIENCY

UNITED FOR EFFICIENCY, or U4E, is a public-private partnership led by the United Nations Environment Programme (UN Environment) and other major agencies, including the United Nations Development Programme (UNDP). U4E essentially aims to move countries and economies to become energy-efficient in collaboration with international companies. This includes helping governments to develop and implement national and regional strategies to improve their energy efficiency – an important element in the goals of the Paris Climate Agreement of 2016 to limit the pace of climate change.

The partnership focuses on six product categories – including distribution transformers and electric motors – with the aim of accelerating and encouraging the uptake of energy-efficient electrical products. As one of the world's largest makers of transformers and electric motors, ABB has been offering expertise, insight and financial support to U4E for the past 18 months and has now committed

to the second phase of the programme for a further three years.

During the programme's first phase, ABB supported UN Environment to create a model that assesses the impact and benefits for relevant countries to move towards energy-efficient transformers and electric motors. ABB also provided technical expertise and knowledge about appropriate energy efficiency levels and metrics.

The work to date contributes to a publication covering best practice policy guidelines that will be offered to governments and decision makers in relevant countries. Over the next three years, ABB will support U4E in the following ways:

- Develop training packages and tools to support countries and regions in the transition to energy-efficient products.
- Train people in countries to help them develop and implement projects and policies that will advance energy-efficient products.
- Create supporting ways for regions to work

together to promote energy-efficient products.

- Promote the transition to energy-efficient products through a global campaign.

Energy efficiency is central to ABB's corporate strategy. The company constantly works on innovations to make its transformers and motors more energy-efficient without any trade-off in performance. This is done by optimising the design and manufacturing processes and with innovations such as new materials. The latest high efficiency transformers can reduce losses by up to 60% compared with many of those in use today. The number of transformers in developing countries is set to more than double by 2040 and this alone offers significant potential to mitigate climate impact.

The International Energy Agency has estimated that more than 30% of all electrical energy is used by industrial electric motor systems globally. Depending on the development and implementation of energy efficiency and environmental policies, a transition to



Motor close up rotation.

energy-efficient motor systems could reduce this electricity demand by 20 to 30% in 2030.

Energy efficiency in these areas can save on energy and costs, while helping countries reach the goals of the Paris Agreement. ABB is determined to play its part in supporting this vision, as a global market and technology leader.

Enquiries: www.abb.com

SPEND LESS TIME CHARGING BATTERIES GET MORE WORK DONE



BOSCH'S L-BOXX can fully charge a 2.0 Ah battery in 45 minutes, allowing tradespeople to work without interruption – even on demanding and time-consuming tasks. The L-Boxx comes with a wireless charging holster that can charge 18 V cordless drill drivers, cordless combis and cordless impact drivers. Inductive energy transfer enables both the battery in the cordless tool and the spare battery in the L-Boxx to be charged while driving to a jobsite.

Compact, robust housing securely holds one 10 kg L-Boxx 136 carry case. Convenient and easy mounting is ensured by means of horizontal or vertical mounting configurations. The L-Boxx itself is charged via the vehicle's own 12 V connection. The system includes a voltage inverter, which provides the right energy transfer to the charging station. Alternatively, the mobile charging station can be connected to an existing 230 V on-board socket.

The GBA 18 V 4.0 Ah MW-C Professional lithium-ion battery offers double the run time of the previous 2.0 Ah wireless charging battery. The flexible power system means the battery is compatible with almost all 18 V lithium-ion professional tools. The new 4.0 Ah battery is 80% charged in 65 minutes and 100% charged in 85 minutes, enabling long periods of on-site work.

The three-piece inlay construction of the L-Boxx secures the batteries, absorbs impact and protects tools, batteries and accessories during driving. The charging status of both batteries is easy to read from a charge level indicator on the mobile charging station and on the battery itself. Tradespeople can therefore see at a glance how much energy is available to them when they arrive at a job site.

Bosch offers different versions of the wireless charging system. A stationary solution is designed for use in workshops and in semi-industrial production such as furniture and vehicle construction. The wireless charging holster is especially suitable for professionals, such as repair service technicians, who work directly from their cars.

Enquiries: +27 (0) 11 651 9854

BRIGHT FUTURE FOR FIRST CAR RENTAL

First Car Rental has installed its first solar power plant at First Car Rental Pomona, cementing its continued commitment to reducing its environmental impact.

The solar power plant is located across three large rooftops containing 415 photovoltaic (PV) panels (of 320 W each) at the Pomona branch, which will produce on average 226.8 MWh of electricity a year.

The installation company, SolarXgen, started building the solar power plant in November 2016 and took three weeks to complete the project. Guaranteed for 25 years, SolarXgen will also maintain the solar system for First Car Rental.

The solar power plant is linked to the power mains via an inverter and offsets the power normally consumed from the utility company. This system does not store power – all the power generated from the PV system at First Car Rental is used on-site. The solar power plant at First Car Rental Pomona continuously runs in tandem with the utility power grid. During the day, when the solar system outputs power, it becomes the primary provider and the utility is secondary. The solar power system is monitored via a SCADA control system and a PLC. These systems allow remote monitoring and reporting. The management system is able to match PV output to the building's energy demand, ensuring optimally timed consumption.

As electricity costs continue to rise, solar power is becoming a more viable and cost-effective solution. The installation of the solar power plant at First Car Rental Pomona will elicit an average monthly saving of 52.9% on the cost of electricity. The expected gross savings on electricity over the 25-year lifespan of the solar power plant equates to R28-million.

The use of solar power is in line with First Car Rental's decade-long commitment to clean energy and sustainability. Over the guaranteed portion



of the plant's lifetime, First Car Rental will be reducing its carbon footprint by 4964 tons of CO₂. Melissa Storey, executive head: Strategy, Development & Marketing at First Car Rental, says that First Car Rental has initiated many environmentally-friendly projects over the years.

"Renewable energy is critical to our continued fight against climate change. Harnessing solar energy for power generation is a feasible clean energy source. The solar power plant ensures that First Car Rental Pomona can become self-sustainable regarding its power needs and reduces reliance on the national grid."

"This installation and our many successful and ongoing green initiatives demonstrate to staff, and to our current and future customers, that we are 'all in' when it comes to reducing our environmental impact," she concludes.

Enquiries: www.firstcarrental.co.za



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FIT-FOR-PURPOSE SOLAR CABLES

Specialist cable manufacturer Helukabel has invested considerable resources into the development of a comprehensive range of cables and accessories exclusively for solar energy applications. This has positioned it as a world leader in the supply of cabling solutions for many of the world's most advanced solar plants.

Having supplied cabling solutions for some of South Africa's main solar projects, the company has also cemented its status as a local solutions provider of the highest quality. The list of solar plants is impressive and includes the latest plants in Kalkbult, Droogfontein and De Aar. The company is also gearing to supply several other new build projects throughout southern Africa.

According to Helukabel South Africa sales manager, Hardus van Dyk, Helukabel's foresight saw the company develop appropriate solutions for photovoltaic applications in the early 90s

with its first photovoltaic (PV) cables, which are still marketed under the well-known Solarflex trademark. These carry global approvals from TÜV and VDE. In addition to its state-of-the-art PV-connectors, the company can also offer users in the photovoltaic industry pre-assembled PV-cables and wires for quick plug-and-play on-site installation.

The pre-assembled solutions include chains, PV wiring fuse/diode, pre-assembled potential equalisation cables, adapters and other fit-for-purpose photovoltaic cables. Components in the solar range include panel boxes, male and female connectors and branches with a host of accessories such as cable glands, protection tubes, shrink-on sleeves and cable ties.

Helukabel's Solarflex-X PV1-F solution is able to withstand the harsh environments of solar plants and exceeds TÜV, CE, RoHS and VDE quality



certifications to ensure an anticipated life of 25 years of service.

All Solarflex cables are ozone, UV and weather resistant and are highly resistant to chemical interference, as well as fire and abrasion. In addition, the cables can be made rodent resistant or to customer requirements for specific sites. The bare copper, tinned and finely stranded cable is double insulated with cross linked Polyolefin while the outer sheath comprises the same material in black, red or blue. The nominal voltage of this particular cable is rated at 600/1000 V ac and 1800 V dc. Other requirements unique to solar energy applications have also been researched and

Solarflex-X PV1-F cables have been developed to enhance the operational efficiency of these sites.

While most projects awarded thus far are for solar photovoltaic (PV) cells, the company also has access to dedicated cabling solutions for wind farms in addition to its range of standard cables.

The company is confident it can supply every requirement of the local renewable energy market with quality certified cables that are tailor-made to each energy sector's requirements and is able, where necessary, to call on the technical expertise of its international parent company.

Enquiries: +27 (0)11 462 8752

MAKE BETTER POWER QUALITY AND ENERGY CONSUMPTION DECISIONS

FLUKE'S three-phase power loggers – the 1736 and 1738 – give users the data needed to make critical power quality and energy decisions in real-time. They are specifically engineered to conduct energy studies and basic power quality logging, automatically capturing and logging over 500 power quality parameters for more visibility into the data needed to optimise system reliability and savings.

The Fluke 1736 and 1738 are built with the Fluke Connect mobile app and software, enabling users to measure, capture and log all relevant characteristics of electric power and enable access to management and analysis of large data sets.

The 1736 and 1738 provide:

More visibility: Capture and log over 500 power quality parameters.

Reduced uncertainty: Visibility through Fluke Connect enables users to view collected data to ensure the data being collected is correct, either at the panel or remotely. By powering the logger directly from the measured line and the intelligent verification function that digitally corrects common connection issues, measurement system errors are significantly reduced.

Better decision-making capabilities: Data can be accessed and shared remotely via the Fluke Connect app to maintain safer working distances and make critical decisions in real-time, reducing the need for protective equipment, site visits and check-ins.

Both the Fluke 1736 and the 1738 have more power quality measurement capability than their predecessor, the Fluke 1730, a pure energy logger; this functionality is a subset of the Fluke 1736 and 1738. For users performing both basic power quality studies and energy studies, the 1736 and 1738 enable users to measure, capture and log all relevant characteristics of electric power and give access to management and analysis of large data sets.

The 1738 includes advanced limit based analysis (uses EN510160 limits), the capability to connect two Fluke Connect devices for logging of supplementary parameters and a WiFi / Bluetooth (BLE) dongle.

Fluke is represented locally by the Comtest Group,

Enquiries: +27 (0)10 595 1821



PV ENERGY PROVIDES ANTIGUAN ISLAND WITH CLEAN ENERGY



The twin-island state of Antigua and Barbuda has taken a leading role in clean energy supply in the Caribbean. This position has again been strengthened through the completion of eleven sun2live and sun2rooftop solar installations on the small private island Jumby Bay in the north of Antigua by renewable energy provider PV Energy Limited. The implementation of ground- and roof-mounted solar systems with a total capacity of 404 kWp represents a crucial step towards a sustainable and economic energy supply for the island.

The sun2live and sun2rooftop solar systems will produce around 626 MWh annually: 216.9 kWp of ground-mounted sun2live solutions and 186.82 kWp of sun2rooftop installations contribute towards cleaner power generation on the island, with a saving of 438 tons of CO₂ emissions a year. All the installed systems have exceeded expected

performance criteria and production benchmarks.

The roof-mounted systems have been installed on different buildings, such as offices, workshops and a desalination plant in the centre of the island. PV Energy supports the small island in its aim to become independent of expensive and polluting fossil fuels and to benefit from the excellent climatic conditions for generating solar energy.

Whilst PV Energy, within the scope of a 10 MWp clean energy project cluster together with the Government of Antigua and Barbuda (GOAB), has implemented several small- to large-scale solar installations on the twin-island state, the UK-based clean energy provider also fosters the provision of solar solutions to private customers in order to promote the island's target of becoming one of the most eco-friendly and reliable countries in the whole of the Caribbean.

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SMART METERS – CREATING THE AWARENESS WE NEED TO REDUCE ELECTRICITY CONSUMPTION

by Johan Jansen Van Rensburg, portfolio manager: Cross Industry Solutions at T-Systems South Africa

Over the past couple of years, the softening of our economy has led to the somewhat Pyrrhic victory of easing our energy crisis and, for the time being, rolling blackouts and dramatic electricity price increases no longer headline in our newspapers or form part of dinner-table conversations.

But, with our economy expected to recover slowly over the coming years, energy demand from businesses and households will start growing and once again place pressure on our national grid.

Smart electricity metering continues to gain momentum, with a number of developed economies successfully introducing the technology. In the European Union, for instance, governments aim to replace about 80% of electricity meters with smart meters by 2020*.

Smart meters enable households, municipalities and energy companies to monitor consumption accurately, adjust energy flows and pricing to create optimal balances between supply and demand, and more easily integrate renewable energy sources into the grid.

It is not the smart meters themselves that will solve South Africa's energy crisis, but rather their ability to create greater consciousness about how we can all play a role in solving the problem. Take, for example, prepaid airtime and mobile data. Consumers are generally very comfortable dialing a USSD string or opening up a mobile app to check their balances. We've all become good at regulating our behaviour based on this instant and always-available information. We know which types of phone calls, websites, apps and messaging services use the most airtime or data.

Imagine getting to the point where we have the same level of detail about our household electricity usage – knowing which appliances are consuming the most electricity at which times of the day. Just as with our smartphone behaviour, we'll start becoming much savvier about how we use our electricity.

The problem with post-paid and, to some extent, prepaid electricity, is that feedback on our usage patterns is just too opaque for us to know how to make little changes in our usage, which would add up to create a big difference at a national level.

Contrast this with the scenario that becomes possible with intelligent metering solutions: smart apps showing the time of the day we use the most electricity, and revealing the most energy-hungry applications; useful tips that are tailored to specific usage patterns and guide us on reducing our consumption; and the chance to participate in national energy-saving campaigns or incentives.

When it comes to energy consciousness, more information really does equal more action.

Smart metering technology can easily be retrofitted into existing prepaid meter environments, with little additional investment required on the part of the consumer. The dashboards and consoles showing usage patterns can be viewed from simple mobile apps or web portals.

Because of the greater infrastructure costs further upstream in the value chain (utilities, distributors, municipalities, etc.) the 'per kilowatt hour' price of smart-metered electricity may be slightly more expensive. However, these increases

will be greatly outweighed by the reduced number of units now consumed, generally resulting in a net financial gain for the consumer.

As we embark on a smart metering journey, the most exciting opportunity is for consumers to generate their own power from renewable sources like solar roofing panels. Smart metering means consumers can supply power back to the grid, effectively 'selling' energy to other users. All manner of new business ecosystems and entrepreneurs could spring up.

It is now time for us as consumers to empower ourselves with information and technology that will help to reduce our energy usage, keep our electricity bills in check, and lessen our impact on the environment.

*<https://ec.europa.eu/energy/en/topics/markets-and-consumers/smart-grids-and-meters>

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Johan Jansen Van Rensburg, portfolio manager: Cross Industry Solutions at T-Systems South Africa.

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LANDMARK 80 MW PEAT TO POWER PROJECT IN RWANDA

A US\$350 MILLION deal to finance an 80 megawatt (MW) peat to power project in Rwanda, which will improve access to electricity for the three quarters of the country's population that is currently off the grid, has reached financial close.

The power plant, which is expected to increase installed capacity in Rwanda by 40%, will utilise the country's significant peat reserves to improve the national installed generation capacity. Despite its status as one of Africa's fastest-growing economies, only 25% of Rwanda's population currently has access to reliable electricity.

The plant is being constructed in the Mamba Sector of Gisagara District, one of the most remote areas in Rwanda, and is expected to be completed within three years.

Africa Finance Corporation is the mandated lead arranger for the project debt and has successfully arranged total senior debt facilities

of US\$245 million, contributing US\$75 million in loans and providing an underwriting commitment of US\$35 million.

Finnish Development Finance Company, FinnFund, served as the lead arranger for total mezzanine debt facilities of US\$35 million for the project. The other lenders are Eastern and Southern African Trade and Development Bank, African Export-Import Bank, Export-Import Bank of India, and Rwanda Development Bank.

The project is sponsored by Hakan Madencilik A.S. – an energy company from Turkey, and Quantum Power – a power and energy infrastructure investment platform. Themis Infra, an infrastructure development firm, is the project development manager.

Commenting on the announcement, Andrew Alli, CEO of AFC, said: "The move from costly external imports of fuel to more sustainable indigenous sources of energy such as peat will reap great rewards for

Rwanda, not just in terms of the significant savings in foreign exchange hitherto used in importing expensive diesel oil for power generation, but also the positive economic and social benefits of providing more cost effective power for businesses and industries, as well as more affordable power for its people".

AFC prioritises investing in projects that will have significant advantages for the local community, which this plant will. It will also make a huge contribution to powering Rwanda's economic growth in the future, in line with the government's objectives.

Rwanda aims to provide 70% of its 12 million people with power from the grid or off-grid by 2018, and the country intends to become a lower middle-income country by 2020.

Enquiries: +234 1279 9600

DECENTRALISE, FIND THE OPTIMAL MIX: THE ANSWER TO AFRICA'S POWER CHALLENGES

Decentralisation of generation and determining the optimal energy mix for available resources and needs are crucial for addressing Africa's energy challenges. This is according to experts on the advisory board of the upcoming POWER-GEN & DistribuTECH Africa conference and exhibition in Johannesburg.

Nuclear Industry Association of South Africa (NIASA) MD and POWER-GEN advisory board member Knox Msebenzi says: "The single biggest issue in Africa is that we as a continent have ample energy resources but very little power. It is tempting to hold up a particular energy technology, such as nuclear or renewables, as the solution. To do so would be to miss the point. We need to be asking how much of each is appropriate; and identify the optimal energy mix based on needs and available resources."

Msebenzi says: "If you look at a country that must drive industrial growth and has ample coal reserves, it does not make sense for it to sit on coal and not invest in clean coal generation. In massive cities like Lagos, for example, with an estimated population of around 21 million, powering development needs with renewables would be unthinkable – they need baseload. This is why we advocate a comprehensive energy mix strategy on a country by country basis".

Bertha Dlamini, industry expert and brand ambassador for POWER-GEN Africa 2017, says most countries on the continent do not have sufficient energy capacity to support their economic growth targets. Dlamini notes that one of Africa's top challenges is addressing the scourge of energy poverty, saying: "Decentralised energy generation is the answer to eradicating energy poverty, community by community and industry by industry. Generating electricity with small, modular, renewable energy solutions makes sense."

"Best practice is to understand local context and deploy technologies in each market that are in line with the maturity level of the country's infrastructure and availability of energy resources. When designing commercial models for energy projects, it is essential to ensure that each project's finance structure is commercially viable and the risks associated are intelligently allocated to ensure the success of each project," she says.

POWER-GEN & DistribuTECH Africa 2017 will be staged from 18 – 20 July at the Sandton Convention Centre.

Enquiries:
<http://www.powergenafrica.com/index.html>

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VOLTEX TO OPEN LIGHTING SHOWROOM AT ITS WELTEVREDEN BRANCH

VOLTEX has opened a new branch in Weltevreden and it will be home to Voltex Lighting (Lascon), a leader in the field of lighting design, manufacturing and distribution. A specialist division of the Voltex Group, Voltex Lighting provides luminaires and energy solutions to the commercial, industrial, professional and residential sectors and its products are distributed via the vast Voltex distribution network and directly to contractors.

The desire to provide customers with a superior lighting viewing experience, which showcases an extensive selection of luminaires, has resulted in the creation of an amalgamated lighting showroom and Voltex outlet. The Weltevreden Branch will feature an exciting and

diverse display of lighting and technologies, making it the ideal branch to envisage commercial or industrial lighting requirements. The impressive showroom will also offer residential customers plenty of inspiration on how better to illuminate interior and exterior spaces. The showroom will be launched in June 2017.

The new Voltex Weltevreden branch will be known as the 'The Home of Lighting' and will also offer customers a full selection of Voltex electrical products as well as access to experts who will gladly assist with lighting design projects or energy-saving solutions.

Located at 17 JG Strydom Road, the branch

is easily accessible via major motorways and offers ample parking.

Enquiries: +27 (0)10 007 5181



Locally designed and manufactured wireless lighting control system

MAGNET'S locally designed and manufactured wireless lighting control system - Lite-C - has been developed for installations in commercial buildings, warehouses and distribution centres, and parkades.

"This new wireless control system, which is easily integrated into light fittings for automation purposes, offers a reduction in electricity bills of up to 43%," says Ryan Groger, head of projects, Magnet Energy. "Lite-C sensors operate efficiently, using radio frequency (RF) technology that allows input devices to communicate with and control output devices up to 200 m, without the need for cabling over long distances".

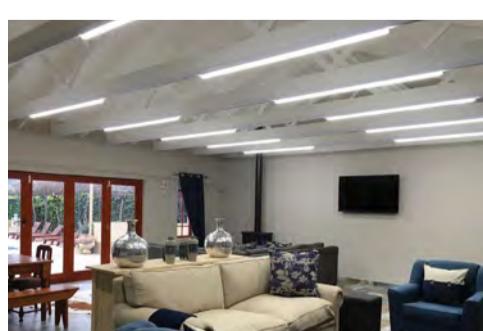
Occupancy sensors are coupled with these wireless controllers, which are particularly well suited for operation at heights, to detect movement of an object at floor level (for example, a forklift truck in a warehouse) and communicate with other devices. At this point, the first bank of lights automatically switches on. Motion of the object is then detected by the second sensor, triggering the next set of lights to turn on, while the previous lights remain active. If no movement is detected by the sensor after a certain time period, the lights are automatically switched off.

With this plug and play system, the input signal can be from various sources, but most commonly from an occupancy sensor. The addressing of input vs output is done via a 10 channel dip switch which allows the unit to be pre-programmed off-site or at ground level prior to installation.

Modifications to the self-configurable system, which is designed for manual set up, can be made without the need for re-wiring or having to use access equipment at height.

Magnet's team of lighting specialists has extensive experience in identifying energy saving opportunities and implementing appropriate eco-friendly solutions to reduce wasted electricity. The new Lite-C lighting management system forms part of the company's range of energy saving solutions.

Enquiries: +27 (0)31 274 1998



BEWARE OF IMITATIONS PURCHASE ORIGINAL BEKA SCHRÉDER

BEKA Schréder products are known for their high quality and performance both in South Africa and in the Sub Saharan Market. This is due to the high quality aluminium, the temperature management system (ThermiX®), as well as the photometric lenses used including the stringent test process to ensure that the luminaire complies with local specifications, international norms and safety standards.

We do, however, see more and more BEKA Schréder LED luminaire copies in the market. This is a concern for us as these can easily be mistaken to be BEKA Schréder products, but have not undergone our stringent quality approval process.

Despite the fact that these copies look similar to our products, there are always critical differences. Even though these companies, which create the copies, will claim that their products comply with the lighting norms and standards, they do not attract the same maintenance, support, warranty, repair, spare parts or accessories that are available from BEKA Schréder and the Schréder Group.

Should you come across these products, please do not hesitate to contact us on +27 11 238 0000 or on info@beka-schreder.co.za.

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Energy efficient LEDlume luminaires at the intersection at the Alzu Petroport.



By replacing the existing HID luminaires, BEKA Schréder has supplied an energy efficient LED street lighting solution for the entire intersection of the Alzu Petroport, which is located on the N4 highway, halfway between Middelburg and Belfast in Mpumalanga.

The primary consideration of LED street lighting is its energy efficiency when compared to HID lighting. As part of the Trans African Concessions (TRACN4) initiative to maintain the N4 highway, TRACN4 decided to replace the old HID street lighting at the Alzu Petroport intersection, with BEKA Schréder's high-performance LEDlume range.

The LEDlume-maxi 279 W LED luminaire has replaced the 400 W HID luminaires on the median, while the on- and off-ramps are illuminated by the LEDlume-midi 144 W, replacing the 250 W HID luminaires. All are mounted 12 m above road level. An energy saving can be achieved with this retrofit project.

BEKA Schréder's LEDlume range was chosen as it boasts unrivalled light uniformity. Also, the required lighting levels for Group A roads were achieved with this lighting solution.

The LEDlume range is designed and manufactured in South Africa, making it suitable for the high temperatures found throughout Africa. It sets a new benchmark in LED lighting with performing and flexible solutions that lead to the shortest payback time. With its tremendous efficiency, its long lifespan and its limited maintenance requirements, the LEDlume range allows users to minimise Total Cost of Ownership.

BEKA Schréder locally develops and manufactures LED lighting products, designed and suitable for local conditions. The company is proud to be associated with TRACN4 and AC Electromech Maintenance Services Middelburg in providing a successful LED lighting retrofit solution for this project.

Enquiries: +27 (0)11 238 0021

NEW LED LIGHTING SYSTEM FROM MAGNET

THE newly developed MARS LED lighting system, available exclusively from the Magnet Group, has been designed for energy efficiency and optimum quality of light in commercial buildings, warehouses and distribution centres, as well as for parkades and retail installations.

"The new range is based on advanced European technology and focuses on the principles of 'Modular, Adaptable, Retrofit and Serviceable' to spell out MARS," says Kaylen Reddy, Magnet's lighting solutions engineer and MARS product specialist. "These high performance fittings have undergone extensive testing in the Energywise lighting laboratory at Magnet's KwaZulu-Natal head office and boast key features that include enhanced aesthetics, an extended lamp life of over 50 000 hours and heat tolerance up to 50°C to ensure safe use in harsh environments.

Precise analysis and defined performance parameters during laboratory testing ensure the highest levels of accuracy in every aspect of lighting, including design and manufacture. Locally manufactured MARS LED lighting systems, which have been designed for easy installation and simple retrofit projects, offer high quality, low glare light, available in different distributions, from 30°, 60° to 120°. This customisable range is also available with dimmable functions and is supported by a five year guarantee. LED linear strips are designed to slide easily into the P200 channel, held securely together with magnetic gear. All

the installer needs to then do is connect the power supply. The modular design of these fittings facilitates the customisation of lengths, lumen output and wattages to suit every application. An extruded rail enables easy mounting and replacement of LED boards and an electronic driver, with adjustable output settings, ensures flicker-free operation.

Magnet has completed installation of these energy saving, recyclable fittings in more than 30 Boxer Supermarkets nationwide. Its team of lighting specialists has extensive experience in identifying energy saving opportunities and implementing appropriate eco-friendly solutions to reduce wasted electricity. Apart from lighting solutions, the company's energy saving service incorporates metering, hot water systems, air-conditioning controls and solar systems. This project management service has contributed significantly to the reduction of wasted energy in industrial and commercial sectors throughout South Africa.

Enquiries: +27 (0)31 274 1053



Lite-C input and output devices

LITE-C WAREHOUSE INSTALLATION - BEFORE



LITE-C WAREHOUSE INSTALLATION - AFTER



The before and after images show how Magnet's wireless Lite-C system controls lighting by ensuring lighting is turned off when aisles of this warehouse are not occupied.

LIGHTING BECOMES SUSTAINABLE

GEWISS has launched a range of products – the Smart [4] LB/HB ceiling mounted luminaire and the Smart [4] FL floodlight—that take full advantage of the features of LED technology to ensure energy savings and optimum visual comfort.

Designed and developed so that lighting systems can be adapted in a quick, easy and cost effective manner, the Smart [4] lighting system is multiform, rational, sustainable, lightweight and versatile and can be transformed from floodlight to ceiling light, offering different performance levels for different contexts.

The design aim was to emphasise the typical characteristics of LED lamps: lightweight, small, practical and robust. These features were transferred to the end product, providing it with unequalled performance levels. The use of power LEDs with high colour performance, high efficiency optical systems (high bays and lenses) and availability of multiple configurations make Smart [4] an ideal solution for minimising costs (for operation and maintenance) and maximising lighting performance.

The practicality of Smart [4] guarantees maximum lighting

performance in any area of application, from industrial to sports environments, indoor and outdoor. The horizontal and vertical modularity of the system is combined with easy installation and maintenance, and the use of 'green' construction materials (plastics and aluminium).

The Smart [4] system can take six different optics: four with rotational symmetry (100°, 60°, 30°, 10°), one elliptic (60° x 120°) and one asymmetric (52°). In the various types, the light flux ranges from 2800 to 25 500 lumen (31° ± 258°W, losses included). The system can be held in place in a number of ways: in the plate/spring version, the body is installed after the plate has been fixed, pressing slightly to trigger the steel spring; the quick watertight connector is then used to connect the device to the mains supply, without opening the power supply compartment.

The entire range is purposely designed and developed to ensure simplified installation and easy retrofit on existing systems.

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EXPANDED RANGE OF HiLight TOWERS

ATLAS COPCO has expanded its range of HiLight towers to seven models, including four advanced LED solutions. The comprehensive HiLight range gives users a variety of choices when it comes to sourcing safe and efficient light towers for multiple applications and industries, including construction, outdoor events and industrial applications.

The HiLight range includes the H5+, B5+, V5+ and E3+ LED light towers, plus the V4, H4 and E2 metal halide variants.

Atlas Copco's latest LED light towers feature a fully directional optic lens that maximises practical light coverage while minimising dark spots. A single HiLight LED light tower, depending on the model, can illuminate large areas with an average brightness of 20 lux. It can run as long as 260 hours before needing to be refuelled and consumes less than a litre of fuel per hour.

Atlas Copco achieved these operational savings by designing the LED HiLight towers with dedicated power packs that optimise power output. The power packs also minimise the risk of

under-loading the engine, which enhances efficiency and improves power pack longevity.

The LED lamps are designed for portability and performance with heavy-duty floodlights that offer high ingress protection (IP) and impact protection (IK) ratings. The LED lamps also offer extreme durability without deterioration in lux level while providing instant light. The HiLights' LED lamps withstand rugged construction sites, minimising the need for replacements. The lamps also require minimal fuel, which reduces CO₂ emissions by 70 percent on each model.

The HiLight B5+ is recommended for applications including music and sporting events, residential construction, road construction, temporary public lighting and oil and gas. Demonstrating Atlas Copco's latest LED technology, the lamps offer exceptional durability without any loss in lux levels. The vertical hydraulic mast provides

maximum safety for workers by illuminating a large area. The B5+ model features a compact box-unit design, which makes it ideal for mass transportation and easy installation. Consuming less than a litre of fuel per hour, the B5+ can run as long as 260 hours before needing to be refueled.

The new HiLight E2 and E3+ are electric models with exceptional plug-and-light capabilities. Users simply connect to any power source, including auxiliary power, an electrical generator or directly into the grid, which helps deliver superior levels of energy efficiency.

The E3+, which benefits from the latest LED technology, can illuminate an area of 2926 square-metres. The light towers can be used for a variety of applications, including events, urban construction, road construction and temporary public lighting.

Enquiries: Please email: michael.sagermann@us.atlascopco.com

The HiLight B5+ model features a compact box-unit design.



UFO LED BULKHEAD



The UFO LED bulkhead from Reelrite has a prismatic diffuser and polycarbonate base with a polycarbonate outer trim ring in white, black or green. It has an input voltage of 220-240V~50Hz~0.065A and is rated to IP55. Suitable for indoor or outdoor use, the unit can be wall or ceiling mounted. It can be supplied in a tamperproof version and a photocell option is available.

Ideal applications for the UFO include corridors, entrances and exits, commercial buildings, staircases, hospitals and schools and domestic residences.

Enquiries: +27 (0)11 769 1574

HE2037
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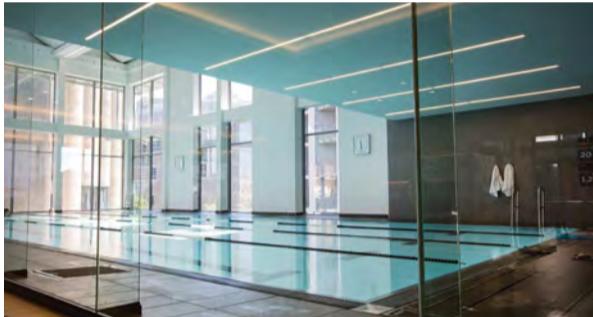
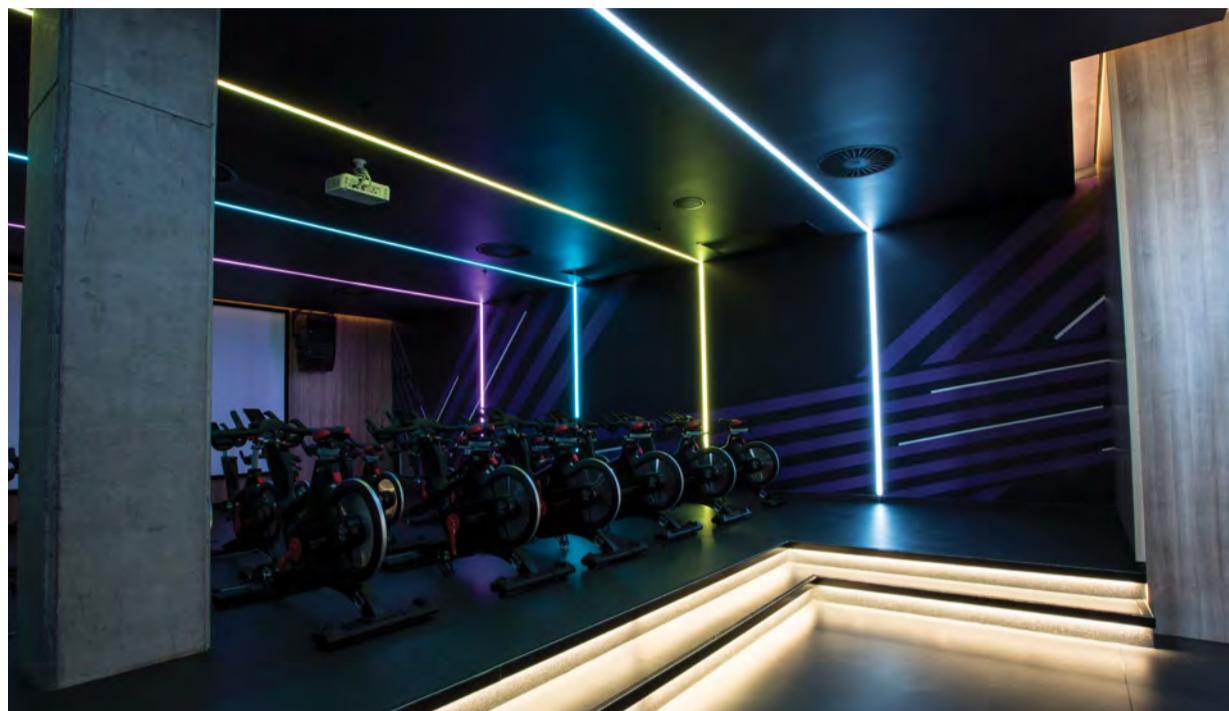
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VIRGIN ACTIVE SILO: LIGHTING THAT SUITS THE FEEL OF THE CLUB



The excitement around the long running development of the Victoria & Alfred Waterfront in Cape Town has culminated with large scale development plans for the new Silo district, which includes the Zeitz Museum of Contemporary Art Africa, corporate offices, a mid-range internationally branded hotel and a 3 912 m² Virgin Active Classic Health Club. Aurecon Engineers and Design Line architects were involved in the planning of Cape Town's first Virgin Active Collection Health Club and LED Lighting SA joined the project in August.

Lighting objectives

The lighting design was crucial to the overall look and feel of the club. The emphasis on the lighting design and layouts was evident from specification through to execution. The idea was to use lighting as a feature throughout the club rather than as a purely functional requirement. The atmosphere of the club required various settings for each area to ensure that the correct ambience would be created to coincide with time of day, season and function. In

order to achieve such a heightened level of control and lighting detail, the LED Lighting SA team recommended a cloud-based lighting control system.

Overall ambience, lighting design and heightened level of control were just a few of the requirements to be met. The most important objective was to ensure a minimum of four-star Green Star SA rating was achieved according to the green building council's specification.

Throughout the health club, extensive cove lighting has been combined with complex linear recessed light lines to create large features. This not only gives the different sections of the gym the required light sources, but also provides an aesthetic that continues throughout the health club. In areas where downlights have been included, fittings have been placed in clusters for varying ratios of light throughout the facility.

To ensure that the different spaces flow easily from one into another, LED Lighting SA specified the ConnecDim cloud control system from Tridonic. This cloud-based DALI control system

THE FIRST REAL 'LED INCANDESCENT LAMP'

LED lamps have always been larger and heavier than incandescent lamps. And with their bulbs made of plastic they appeared not to be of high-quality. This is no longer the case – with the new Parathom LED retrofit Osram LED lamps from LEDVANCE, customers get the first replacement products that look exactly the same.

Facts of the highly efficient LED lamps include: same size, full-glass design, almost the same weight. The advantages are obvious: customers benefit from an energy saving of up to 90 % and the lamps can be fitted into all existing luminaires.

The clear-glass version also

offers all of these advantages, and here the new and stylish LED filament is openly visible – something that is becoming desirable to more and more customers.

There is a choice of wattages, sockets and shapes. The CLASSIC A is available in 40 W and 60 W versions; the CLASSIC B in 25 W and 40 W versions; and the CLASSIC P in a 40 W version and E27 base, as well as in 25 W and 40 W versions with an E14 socket.

A number of direct replacement LED lamps are available in the clear version.

Enquiries: +27 (0)11 207 5600

Incandescent lamp PARATHOM Retrofit CLASSIC A / LED

- size
- glass bulb
- weight

allows flexible control using QR codes to recall scenes in certain venues. The club management team has control through smartphone apps and remote smart time scheduling is possible. The system further allows for maintenance predictions, energy consumption reporting and a seasonal scene recall function.

Results and benefits

The design of the lighting is functional and yet plays a crucial role in the overall design of the club. The complex array of lighting designs enhances the prestigious nature of the luxury health club. Smart time scheduling, flexible lighting management, reduced wiring and scene selection through the use of QR codes and enhanced easy-to-understand control systems allow for further control over the atmosphere of the new Virgin Active Collection Health Club.

Enquiries: +27 (0)21 510 0028

13TH IEssa ANNUAL GENERAL MEETING

IESSA's annual general meeting is to take place at The River Club on Liesbeek Parkway, Observatory in Cape Town on Tuesday, 16th May, 2017 at 11:30 to 13:00.

LED AND STANDARD DIMMERS

THE SHUTTLE range of dimmers is available in both bell-press and rotary. Owing to their patented design, the dimmers are 100% silent and offer smooth dimming. All the dimmers' minimum loads are one lamp, even in the use of LED. The lowest possible point of dimming is achieved and can be set in memory in the event that the electronic transformer struggles to deal with a small load.

Philips, Samsung and Lemnis have approved the dimmer internationally whilst Osram, Radiant, Mr Price and Eurolux recommend Shuttle LED dimmers for their dimmable LED lamps.

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GOLD, GLITTER AND GREAT AWARDS

WHILE it's true that all that glitters is not gold, it's also true that a little bit of sparkle never did any harm. The glitter and gold adage is particularly apt when it comes to lighting and design awards.

The Euro Nouveau collection of bespoke lighting from top European brands and manufacturers includes a number of products that have fetched some of the world's top design prizes. Time and time again, brands like Slamp, Fontana Arte, Inarchi and Karboxx are awarded the most coveted forms of recognition in the industry for their innovative design, superior functionality and cutting-edge innovation.

While awards are not the only motivating factor for including the lights in the Euro Nouveau collection, they do offer insight into the prevailing sentiment around

trends and customer needs and desires as they are typically judged by an all-star cast of design and innovation experts who lend gravitas to the final decisions.

Though the aesthetics of the lights are a key consideration for recognition, none of these prizes is awarded on visual appeal alone. Structural functionality, incorporation of the latest technology, and considerate use of materials are considered before a design is awarded one of these desirable titles.

The Euro Nouveau collection has received awards across the world, from Brazil to Spain, Italy, the UK, China and more, which means that Euro Nouveau really does offer the discerning South African customer a world-class, award-winning selection of luminaires.

Brightest stars

Some of the more noteworthy awards Euro Nouveau products have received include the Red Dot Design Award, the ArchiExpo I-Novo Award and the Wallpaper Design Award.

The i-Novo Awards, for example, seek to reward creativity, recognise innovation and celebrate sustainability by awarding those products that improve the architecture and design industry's standards through innovation. In 2016, Italian brand Karboxx's ZERO1 Suspended Lamp, designed by Princic and Righi Architects, was awarded third place in the design category of this award.

Presented by the Design Zentrum Nordrhein Westfalen in Germany, the Red Dot Award is, arguably, one of the best-known and most significant awards in the international design industry. Euro Nouveau is proud to count a number



Karboxx's ZERO1 Suspended Lamp was placed third in the i-Novo Awards.



Inarchi's Ray Wall Lamp is a Red Dot winner

of Red Dot Winners, including Inarchi's Ray Wall Lamp, among its lights.

Enquiries: www.euronouveau.co.za

TUNABLE WHITE MODULES FOR WALL AND CEILING LUMINAIRES

WITH its new CLE Tunable White modules, Tridonic is adding components for round wall and ceiling luminaires to its Tunable White portfolio. The colour temperature can be set dynamically between 3000 K and 6000 K, with the luminous flux remaining constant.

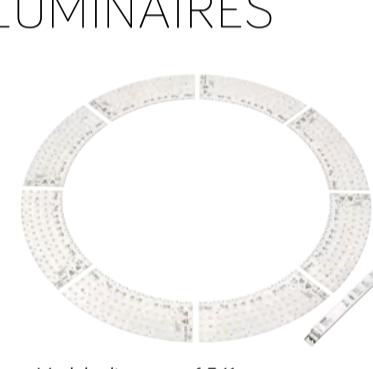
Tridonic offers modules with an adjustable colour temperature between 3000 K and 6000 K with the CLE Tunable White system. The CLE Premium modules are tailored to round wall and ceiling luminaires and are only available as pre-calibrated sets. In addition to four or eight LED modules, which lead to module diameters of 261 mm, 401 mm or 541 mm, the sets contain low-profile LED drivers.

The drivers provide various connection options via their digital interface: DALI Device Type 8, DSI, switchDIM and colourTEMPERATURE. This ensures a constant high quality of light with a CRI > 80 and small colour tolerances corresponding to MacAdam 3 across the entire dimming range from 10 to 100 percent. The colour temperature remains constant during dimming.

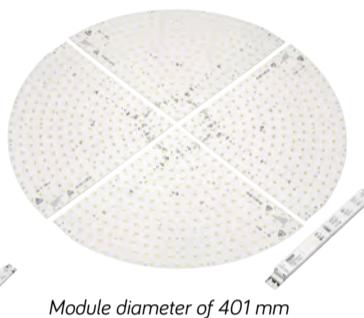
Depending on the LED module used, the luminous flux is 4 x 1150 lm, 4 x 2450 lm or 8 x 900 lm. System efficiency is up to 166 lm/W depending on the module size. The CLE Tunable White system requires no additional cooling and has a life of 50 000 hours. The manufacturer offers a five-year system guarantee.

Light that addresses the needs of people and mimics light over the course of a day with its white tones has a stimulating effect on people's well-being and can help increase concentration and productivity. This is of great benefit not only in offices and educational establishments but also in retail and health care facilities. Current studies suggest that the right light can have a positive effect on disruptions in biorhythms and depressive moods.

Enquiries: +27 (0)11 894 3525



Module diameter of 541 mm



Module diameter of 401 mm



Module diameter of 261 mm

INADEQUACIES IN HOSPITAL LIGHTING NEED TO BE HIGHLIGHTED

When one considers the amount of money that various countries spend each year on healthcare systems in general and on medical technology that is becoming increasingly sophisticated, it is remarkable to think that something as simple as lighting can have such profound benefits on people's health.

The temperature of lighting (warm or cool) and its brightness have been shown to have a significant effect on our circadian rhythms (the system that sets and runs our body clock). When lighting is warmer and dimmer, it stimulates production of the sleep hormone melatonin, which in turn helps us to sleep. In contrast, cooler, brighter light closer to that of daylight has been shown to help those suffering with seasonal affective disorder (SAD), and wakes people up in accordance with their natural sleep cycle.

But lighting's role within healthcare is far more extensive than warm/cool and bright/dim – in a recent case study, Aurora worked with Luton and Dunstable hospital in the UK to create a more energy efficient, cost

effective LED lighting installation as part of a hospital-wide refurbishment project. The solutions implemented included VersiTile™ LED flat panels and dseries™ fixed dimmable downlights. The refurbishment offered energy cost savings of 46% for the trust and had a positive impact on patient experience.

Localised task lighting by patient bedsides with colour and warmth changeable LEDs now allows patients to set their own lighting and colour levels that are comfortable to them, while individually controllable LED flat panels in wards and dimmable downlights in consultancy rooms provide optimal working conditions for medical staff.

The inadequacies in hospital lighting and the need for upgraded tailored lighting solutions need to be highlighted. Lack of funding for such projects continues to be a barrier, but the benefits of change can bring significant savings, payback, reduced bed occupancy times and, above all, excellent value.

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SAFETY SOLUTION

In recent years consumers have become more reliant on electricity and their consumption has increased considerably. Unfortunately the amount of outlet points in the home have not kept up with this demand. Consumers are now overloading sockets with multiple adapters plugged into one other, unknowingly creating potential electrical safety hazards in their homes.

Fortunately, the VETi range includes sockets with a wide variety of combinations and colours to satisfy any need. It is not only safer for you and your family, in addition it gives a more elegant and neat appearance in your home.

All VETi products have been tested to South African and international standards and have been issued with the NRCS certificates of approval to allow for the sale in RSA.

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BRIGHT SPARK

THE PASSWORD

A man wanted to work, but he could not log into his computer terminal successfully. He tried twice, but still his password did not work. He suddenly remembered that the passwords are reset every month for security purposes. So, he called his boss and said, "Hey boss, my password is out of date."

His boss replied, "Yes, that's right. The password is different. Listen carefully. I am sure, you can figure out the new one. The new one has the same amount of letters as your old password, but only four of the letters are the same". "Thanks boss." With that, the man could correctly log into his station. What are both the new and old passwords?

APRIL SOLUTION

THE HOSPITAL MUDDLE

The surgeon was the young man's mother

JUNE FEATURES

- Tools of the trade
- Energy measurement and supply
- Lighting

Buyers' guide

Energy measurement and supply

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