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The winner of the Electrical Installations Category at the second National WorldSkills South Africa competition was Mthokozisi Sanga (centre) from KwaZulu-Natal with Kyle Ritchie of Gauteng (left) and Faghrudeen Samuels of the Western Cape in second and third places respectively.

The second National WorldSkills South Africa (WSSA) competition, held in Durban from 13 to 17 February, was a great success, with one hundred and twenty two participants from public Technical and Vocational Education and Training (TVET) Colleges and the Universities of Technology taking part in the event. Speaking at the Opening Ceremony, Department of Higher Education and Training Honourable Minister, Dr Blade Nzimande, said competitions like this went a long way towards building enthusiasm for the trades.

He explained that the WSSA was one of the projects in the Department that targeted the continuous expansion of the TVET Colleges sector, particularly artisanal skills.

The Department of Higher Education and Training works with the colleges in order to expand programme delivery to embrace increasing numbers of occupational trade qualifications as listed by the Quality Council for Trades and Occupations (QCTO). South Africa is well on the way to achieving National Development Plan (NDP) goals, which require that 30 000 artisans are produced per year by 2030. According to Minister Nzimande, the country is already producing over 16 000 qualified artisans a year.

South Africa is one of 72 countries affiliated to WorldSkills International (WSI) and the second National Competition was in preparation for participation in the International Competition to be hosted in Abu Dhabi in October 2017.

The winner of the Electrical Installations Category was 21 year old Mthokozisi Sanga from Kwadabeka in KwaZulu-Natal. Mthokozisi, who is employed by Bulk Collections Coal Terminal Harbour was introduced to the WSSA Competition by Ray van Heerden of Shukela Training Centre where he is currently doing an apprenticeship. He says the training and experience he gained in preparation for the WSSA National Competition have improved his skills and the practical aspect of his work. They have also given him exposure. Winning the competition has "made my company proud and my peers are aware of this amazing feat I have achieved," he says with a smile.

In preparation for the competition, Mthokozisi put aside his studies and spent most of his time at the Shukela Training Centre where he concentrated on improving his skills set by focusing on the most efficient ways to wire panels and gear himself to become a champion. Asked about the reaction of his friends and family to being selected to participate in the WorldSkills International Competition, Mthokozisi said his mum was "shocked and happy in the sense that I have made her a

proud mum". It was the first time his company had participated at the National Competition and they were too very supportive.

What advice would Mthokozisi give young people who are interested in pursuing a career as an artisan? "I would give the advice my mum gives to me: *If you have a dream you've got to let it go so it leads the way for you to follow*'.

In the short term Mthokozisi aims to obtain his wireman's licence but in the long term he plans to own his own company and help youth like himself get the opportunity to become successful.

Mthokozisi is "more than excited and ready" to be working with Nick du Plessis of P and T Technology, the South African Electrical Installation National Expert who will be mentoring Mthokozisi in preparation for Abu Dhabi. He is looking forward to the challenge and to learning as much as possible - we wish Mthokozisi well and look forward to the outcome of the WorldSkills International Competition.

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Ed Newman.

Ed Newman, who describes his blood as orange, has been managing director of Osram since 2016. He has been with the company for close on three decades and has enjoyed every minute of his time there. Ed is a team player and his management style is one of encouragement. He enjoys working with a team that combines the wisdom of older staff members with the 'fire' of younger ones and believes firmly that the way to get the best out of your team is to play to their strengths.

In addition to being a familiar figure in the lighting industry, Ed is well known for his work in wild life conservation and particularly his love of rhino.

Sparks: Where were you educated?

EN: I matriculated at John Orr Tech.

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

EN: I have been involved in this industry since 1979.

Sparks: When and where did you start your career?

EN: At Amalia Lamps and Lighting, which was part of Tedalex Lighting, in 1979. I started in stores, moved to logistics and then onto sales, where I have been for most of my working life.

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

EN: The greatest change has been in lighting. In the automotive industry, lighting has changed from incandescent halogen lamps to the most sophisticated laser lighting. As cars get smarter and more efficient, the lighting within has to become sleeker, smarter and more efficient and in this environment OLED and LED laser come into their own.

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

EN: Three years ago I worked with a team on an LED project for a mining company. It was an underground project and we changed all the lighting from incandescent to LED. It saved the mine a tremendous amount of energy – around 2.1 MW. That was great.

On a personal level, I'd have to say my greatest accomplishment is my sons Oliver (33) and William (31). They are absolute gentlemen – so must have got their fabulous attributes from their mother!

Sparks: Have you won any awards?

EN: We won *Midas Supplier of the Year* award in 2015 and in 2016 and I want it again this year. When I first met Midas they were less than enchanted with our service and I asked them to give me a chance. We worked really hard and, in two years, won Supplier of the Year.

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

EN: Issy Den of Carlton Lighting was the most inspirational person I have ever met. What he taught me in the two years I worked with him has benefitted me throughout my life.

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

EN: Technology is moving so fast the market cannot keep up with it and there are no industry standards. In spite of this, however, many companies are doing excellent work and it is an exciting environment to be in.

Sparks: What do you enjoy most about your job?

EN: I love every minute of it. I thrive on being around people and this office has a mix of older and younger people. Older staff provide stability and the younger ones have fire.

Sparks: How do you motivate your staff?

EN: I nurture people's strengths rather than focus on any weaknesses and, if someone does a good job, I make it known to everyone. I also advise my team to acknowledge mistakes and to make anything that is wrong, right. I encourage staff to ask questions and to make decisions – not every decision is right, but make the decision! I strive to build trust – Issy Den taught me that.

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

EN: My blood is orange – I would do exactly what I have done all over again.

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

EN: Absolutely. The opportunities are limitless – future technologies and the architectural side of lighting know no bounds. The ugliest city in the world can be made beautiful with light.

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

EN: My advice is to engineers: make sure you get the correct data when specifying lighting.

Sparks: What is your favourite quote?

EN: Never give up.

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

EN: I would like to see this company flourish; visit the Okavango Delta and the Au-grabies Falls and, finally, retire to Europe so that I am close to countries I have not visited yet.

HKTDC HONG KONG INTERNATIONAL LIGHTING FAIR



www.hktdc.com/hklightingfairse

The 9th edition of the HKTDC Hong Kong International Lighting Fair (Spring Edition) will be staged from 6 to 9 April 2017 at the Hong Kong Convention and Exhibition Centre. Around 1 300 exhibitors are expected to join the fair, offering global buyers a one-stop sourcing platform for all finished products, parts and components.

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CABLE CURRENT HANDLING AND VOLT DROP

Two items to be considered when choosing a cable to supply a load are the current handling capability of the cable and the volt drop at the point of connection to the load.

The current handling capability of cable is to be found in tables in SANS 10142; but all is not as simple as it sounds. What you are trying to determine is how hot the cable gets when supplying a given load but, how hot it gets depends on (a) the current it is supplying which heats up the conductor and (b) the method of installation of the cable.

A cable buried in-ground can handle more current than one within a sleeve or duct. Cables that are installed in trenches in substations and fixed to cable trays and cable ladders can handle more current than cables in a duct but less than cables buried in

the ground. If cables are bunched together inside a duct the current handling capacity reduces.

All this is in SANS 10142 and is not difficult to understand. Where people make the mistake is to miscalculate the current drawn by the load – for example a 22 kW motor produces 22 kW of shaft power. In the worst case, the terminal voltage at the motor is 380 V. We know the motor will operate at a power factor of about 0.8 and is about 96% efficient. So the current drawn by the motor is $22/0.380/0.85/0.96 = 71$ amps per phase. When the motor starts it will draw about six times this current. Unless the motor starts every few minutes this doesn't matter as far as heating up the cable is concerned. What does matter is the voltage drop at the motor terminals when the motor starts. It is then you

have to know something about what load the motor is starting: if it is starting a pump that is operating against a closed valve the starting run up will be short – no more than a few seconds. If the motor is starting a load that has to be run up to speed, like a rotary crusher, then the starting run up will significantly longer – probably up to 30 seconds. Under this condition the motor should be started with a reduced voltage starter. Back in the day we used star delta starters. These days, electronic starters are used.

But let's get back to the cable. From our cable table in SANS 10142, a 16 mm² cable will handle 72 A so this seems to be the right choice. In point of fact it is, but it depends on the volt drop. If the supply cable is 100 m long the volt drop on start of the motor will be such that the terminal voltage is 332 V phase-to-phase and the motor will not accelerate. Under these conditions you will have to use a 35 mm² cable.

Returning to how the cable is installed, it is wise to consider the heat flow from a group of cables. Heat will not easily be channeled away from cables in a bunch and, consequently, if almost the entire run of cables is buried in the ground and only the final entry in the substation has the cables going through a duct, then the cables will be cool enough for almost the entire run, but will melt at the duct (on a wind turbine installation exactly this happened).

A final word on the subject is the matter of single core cables. Single core cables are used when the cable current requirements are large. Single core cables are run separately from each other and should ideally be strapped together to form a pyramid shape. The term for this is 'cables installed in trefoil'. One has to be super cautious with single core cables because they are surrounded by a magnetic field. If you run single core cables and terminate them in a galvanised gland plate, the gland plate has to be aluminium, otherwise it will fry.

LIQHOBONG SWITCHGEAR PROJECT NEARS COMPLETION

JB SWITCHGEAR was awarded a contract by projects company DRA Global for the design, manufacturing and supply to the Lihobong Diamond Mine in Lesotho of a comprehensive range of low voltage switchgear assemblies, which included containerised motor control centres, outdoor kiosks, distribution boards, PLC panels, remote I/O boxes, field isolators and junction boxes. In addition, JBSS supplied a large number of variable speed drives and soft starters. Some of the motor control centres were skid-mounted to facilitate mobility on the mine site. The electrical equipment was supplied by Rockwell Automation, and the communication protocol was Ethernet. Starter sizes ranged from 0,55 kW to 220 kW, with an operational voltage of 525 V, and a fault level of 50 kA.

MD, Johan Basson says the manufacturing programme is now nearing completion, and praised the DRA project team for the way this multimillion Rand project was handled. He added that the Lihobong team was also "on top of its game," and that it was "another good project for JBSS".

The company supplied its highly-regarded and popular 'Eagle Series' of motor control centres. This design carries comprehensive type test certification for compliance with IEC 61439-2 and IEC TR 61641. Basson says that around 31 000 tiers of this robust and user-friendly design have been supplied to destinations throughout Africa and abroad.

The Lihobong Diamond Mine is situated at the head of the Lihobong valley in the Maluti Mountains of Northern Lesotho, and is operated by the Lihobong Mining Development Company, which is 75% owned by Firestone Diamonds and 25% owned by the Lesotho Government.

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FACTS

about

LED

Lamps



Some facts:

- There are no **compulsory** local standards for LED lamps
- There are two standards that may be applied voluntarily by suppliers and specifiers: SANS 62560: South African National Standards
IEC 62560: International Electrotechnical Commission
There appear to be very few products that are certified against these standards.
- The “CE” mark appears on many products. This is a manufacturer’s claim to a certain quality standard. **It is not an indication of independent, 3rd party testing.**
- The nature of LED performance claims being made cannot usually be validated by buyers, whether they be resellers, electrical contractors or users - until it’s too late.

A relatively new technology, LED lighting is fertile ground for unscrupulous and opportunistic suppliers to capitalise on the absence of a compulsory local standard for LED lamps and to make performance claims that will not be met, mostly around lifespan and power-consumption.

Some consequences:

- The absence of compulsory standards can result in incompatible dimensions between fittings and lamps from different suppliers - a performance and safety risk to users.
- The technology of an LED lamp and its heat-generation encourage shortcuts that compromise insulation in favour of heat dissipation - a safety risk to users.
- Plastic parts are a manufacturer’s cost-saving opportunity. Inferior material will affect heat- and flame-resistance.
- The low volume of certified testing of LED lamps in South Africa does not allow much credible reference to be made to local testing and regulatory authority that will comfort buyers and specifiers.

SAFEhouse members have signed a code of conduct: Your assurance of commitment to offer only safe electrical products.

SAFEhouse membership is suppliers’ assurance to customers of responsible behaviour and of customers’ safety as a priority. SAFEhouse members regulate themselves. SAFEhouse is primarily a communications association that informs customers of safety requirements and occurrences of non-compliance with such requirements.



The SAFEhouse Association is a non-profit, industry organisation committed to the fight against sub-standard, unsafe electrical products.

For more information contact:

Barry O’Leary: Tel: 011 396 8251 | Email: barry.oleary@safehousesa.co.za

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TRAINING AND DEVELOPMENT BY NICK DU PLESSIS

PROCRASTINATION: THE THIEF OF TIME

Procrastination, a term with which we are all too familiar, is defined as the act of 'putting off or delaying an action to a later time'. I frequently find myself procrastinating but do always try, ultimately, to find time to do the things that have to be done.

Now that we are comfortably settled into the New Year it is time to think about our careers. I can recite a list of people with whom I chatted at the beginning of last year who told me that though they could not do training at the time WOULD DEFINITELY do it later in the year. Unfortunately, for many of us training is like our new year's resolutions: we have the best intentions of improving our skills or knowledge but, before long, life gets in the way and by the time we rub our eyes, the end of the year has arrived, and we are no further forward.

If we delay doing the things that will improve or change our attitude to life or to the lives of other people we could well miss out on a valuable portion of what could be our legacy. So, this month, I would like you to consider – for yourself or someone you care about – what you or they could do to improve knowledge or skills. Here are a couple of options:

- Get your Department of Labour registration.
- Enrol someone on a programme or course that could change their life opportunities.
- Do that trade test.
- Get to grips with a PLC program.
- Update your knowledge of the codes of practice or legislation
- Sign up for a course that supports your hobby whether it be bird watching, water-skiing or scuba diving.
- Do something that pushes your boundaries and makes you that little bit uncomfortable.
- Visit friends or family you have been meaning to visit for ages.
- Climb Kilimanjaro.

If you are one of those people who has stashed your 'To do' list in a filing cabinet you can no longer bring to front of mind, you may like to consider the following: Many of the phone calls I get start like this: "I am 55 (or 62, or whatever) years old and life got in my way. I am contemplating what I should do as my pension days draw closer. I never listened to my father when he told me to finish studying and I now need to get my Department of Labour registration (wireman's licence). How do I go about this?"

After explaining the criteria, in most cases I get, "but I am too OLD to go to college".

I would like you to start planning and doing, rather than thinking. You have the time now to get that elusive qualification or improve your knowledge and skills. By doing so you will also remain at front of the pack that is chasing your job. As Arthur Godfrey said, "Even if you're on

the right track – you'll get run over if you just sit there".

Many people find themselves in the dark when it comes to how to go about improving their skills and their knowledge and, in many cases, they are BBC (Born Before Computers) and do not understand how to search the internet for possible career development opportunities. This month, I appeal to you to ask for help and, if necessary, ask someone young to help you negotiate the internet and, if necessary, teach you how to search. Once you find a suitable course, ensure that the programme is registered by the correct authorities and that what you embark on will support your career or your hobbies.

I leave you by reminding you of two anonymous quotes, "Procrastination is the grave in which opportunity is buried" and "Procrastination is the thief of time".

GO DO IT

SECOND PHASE OF EMPERORS PALACE'S ENERGY SAVING SOLUTION KICKS OFF



Having already built one of the largest rooftop solar PV (photovoltaic) plants for a hotel and gaming establishment, Peermont is extending its PV plant at Emperors Palace from 1.176 MWp to 2.723 MWp by adding more generating capacity on its parkade rooftop and other roof spaces.

After the successful reveal of the first phase of the rooftop solar PV plant in August last year, Peermont approached Terra Firma Solutions, a leading energy engineering solution provider, to expand the existing PV plant that has already generated around 640 MWh of electricity. The bulk of the additional solar modules will be built onto the uppermost level of a new shaded parking area. Set for completion by March 2017, this will add substantial electricity savings to the property. The total plant size will now cover about 17 000 m² of roof comprising around 9 000 solar panels and 40 000 m of cable.

CONTINUED ON PAGE 8



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PREDICTIVE MAINTENANCE WITH WIRELESS TOOLS

The foundation of any electrical safety programme is to limit the exposure of workers to the electrical hazards of shock and arc flash. Using test leads and clamps to probe inside a live panel when troubleshooting and performing routine maintenance always exposes workers to danger. Electrical personal protective equipment is a last line of defence and must never be relied upon as the primary method of protecting electricians and technicians.

Safe work practices, including the use of non-contact test tools that do not require electrical workers to place themselves in harm's way, must

first be considered when it comes to electrical safety.

Fluke Connect added a new level of efficiency and effective collaboration for maintenance and troubleshooting in manufacturing, commercial, and retail facilities. Technicians can monitor real time results from more than 20 different Fluke test tools from a smart phone (up to 10 at a time on iPhone and six on Android). This information can be securely shared, in real time, with authorised team members in other locations.

In addition, test results and maintenance data can be collected through the Fluke Connect app and stored by asset in secure Fluke Cloud storage.

That means that troubleshooting and maintenance staff can access data in the field to compare new measurements to baseline measurements and more quickly identify problems.

The end result is that technicians can use Fluke Connect to quickly identify and diagnose problems while securely sharing the related data, when they want and with the people who have permission to view it.

Fluke's newly released clamp meters – the Fluke 376 FC True RMS ac/dc clamp meter with iFlex and the Fluke 902 FC True-rms HVAC clamp meter – allow technicians to access tight places and can



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When you think test instruments solutions, think ACDC Dynamics. Direct Service, Dynamic Solutions.

transmit measurements to a smartphone or tablet for later, detailed analysis. The measurements can be uploaded to the cloud. Technicians can combine measurement data from multiple Fluke Connect test tools to create and share reports from the job site via email and collaborate in real time with other colleagues with ShareLive video calls or email, increasing productivity in the field.

The 376 and 902 clamp meters also decrease the frequency technicians will need to wear personal protective equipment when working on high voltage/current panels. Technicians simply turn off the panel, verify it is de-energised using standard safety procedures, place the clamp and sync it to a smartphone with the Fluke Connect app, close the panel, re-energise it, and take measurements from a safe distance.

The Fluke 376 clamp meter has the following features:

- Integrated VFD LowPAS filter for low driver measurements.
- True RMS voltage and current for non-linear signals.
- Measureable to 1 000 A dc and > 25 000 A ac.
- Finds and logs intermittent faults, and establishes base-line and trends.
- Creates and transmits results in report-form wirelessly via Fluke Connect measurements app from site.

The Fluke 902 clamp meter has the following features:

- Dual rated - CAT III, 600 V / CAT IV, 300 V.
- Microamps for testing pilot light sensors.
- Resistance up to 60 kilohms. Ac current, ac/dc voltage.
- Capacitance and contact temperature.

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CONTINUED FROM PAGE 7

"We are extremely excited about the practical implications of the solar PV plant and the rollover of this ambitious project into its second phase will enable Emperors Palace to generate a substantial quota of its own power. This will alleviate its burden on the national power network significantly," says Peermont CEO, Nigel Atherton.

"Partnering with Peermont has been a phenomenal experience in that it has put its money where its mouth is and driven its sustainability agenda into real tangible actions that benefit the environment while helping the company's bottom line. It is refreshing to work with a large company that understands the importance of sustainability and puts this at the forefront of its capital expansion plans. This is not only a great achievement within the borders of South Africa but in the entertainment industry globally. We look forward to working with Peermont on other similar successful projects," says Ed Gluckman, managing director of Terra Firma Solutions.

Peermont Hotels, Casinos and Resorts has a dedicated sustainability programme to reduce the group's energy and water consumption, decrease waste and promote recycling.

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ONLINE PORTAL FOR SOUTH AFRICAN ELECTRICIANS

SCHNEIDER ELECTRIC has developed an online portal to connect with electricians and to help them manage and grow their businesses. The company's Partner Portal for electricians features a host of online tools designed to make projects and jobs easier and it also serves as a network that provides access to information on latest products and energy management solutions.

"We are excited about the impact this platform will have, not just on the businesses of South African electricians, but on the economy as a whole," says Zanelle Dalglisch, Electricians Manager. The easy-to-use platform provides detailed resources for the efficient running of an electrician business. It includes sections on business development such as: Promote My Business, Grow My Business, Finance My Business, My Business Partners and I am a new electrician. Additional categories include: Quote & Plan, Finding Products, Electrical Installation Guide and Technical Support.

Specialised features on the portal provide access to practical tools tailored for electricians to grow and manage their businesses. Industry access links are also available on the portal to ensure that partners

stay connected and to offer a one-stop service through the online portal that meets all electricians' needs.

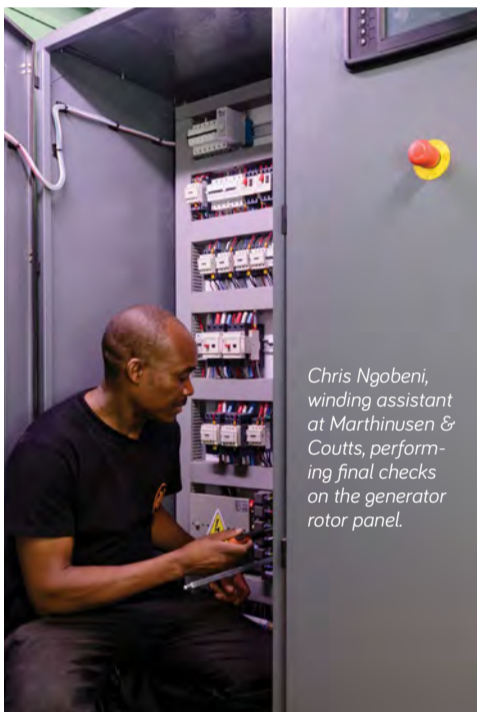
Online training courses are designed for all types of electrical businesses and are continually refreshed to keep up with any industry changes; such as product and regulatory developments.

"The key objective now is to ensure that we work with various electrician stakeholders in South Africa to ensure maximum uptake and ongoing usage of the Schneider Electric Partner Portal for electricians," Dalglisch says, adding that Schneider Electric wants every single electrician from small, medium and large sized businesses to register and use the portal to gain maximum benefit through the comprehensive electrician's offer available on the portal.

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MANAGING COMPLEX TURNKEY PROJECTS WITH EASE



Chris Ngobeni, winding assistant at Marthinusen & Coutts, performing final checks on the generator rotor panel.

The ability of Marthinusen & Coutts, a division of ACTOM, to manage complex turnkey projects was again underpinned by the successful completion of a project for Impala Platinum Mine. Clive Myall, Marthinusen & Coutts' field service manager, said the leading electrical rotating machinery service provider was awarded the contract to refurbish two mobile generator sets. The generator sets provide backup power at the mine outside Rustenburg.

The project involved servicing the 2 200 kVA alternators and MTU engines as well as managing the servicing and refurbishment of all associated equipment. Myall said that some of the electrical equipment had to be replaced and upgraded with the help of specialist suppliers and service providers.

Both mobile units, originally manufactured in 1986, were taken to Marthinusen & Coutts' Power Generation equipment repair facility in Benoni, where they underwent a complete strip-down assessment. New radiator cores and piping were manufactured for the cooling system. A new engine pre-heat system was designed, manufactured and installed and minor engine repairs were performed.

The original analogue control systems in the control rooms were replaced by state-of-the-art automated digital systems, along with compatible engine governors. This work was subcontracted to automation specialists. Myall said that the upgrade involved a complete redesign of the control panels and wiring and that it represented a big advance over the old system in terms of speed, efficiency and automatic monitoring of the condition of the entire generator set equipment.

Enquiries: +27 (0)11 607 1700

TOUGH, STRONG, DURABLE & ROBUST

Established in 1978, Allbro is a South African company with more than 600 employees and has 19,000 sqm of production facility. Allbro supplies key components that are used in almost every locally made transformer.

Brands like York, Okari, Enlec, Utilec, PSO1 and PSO2 are well known in the South African market and are all solely manufactured by Allbro in South Africa. Local manufacture to international standards means that products are suited to the rigors of a tough local environment.

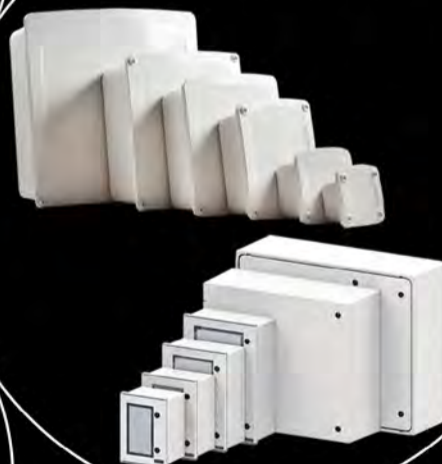
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REASONABLY-PRICED CAMERA PACKAGE WITH 90° LENS

THE OPTRIS PI 640 thermal imaging camera launched onto the market in 2014 is now available with two additional changeable lenses. Three lenses with 33°, 60° and 90° fields of view are now available for different measuring tasks and customer requirements. "With this offer, we are launching the first reasonably-priced VGA thermal imaging camera with a 90° lens," says Torsten Czech, product marketing manager at Optris. The offer includes both calibration and open source software.

The Optris PI 640 is used in different industries worldwide. Many applications offer little space between the measured object and the thermal imaging camera; this is where IR users require greater flexibility. The proprietary software also enables the use of the thermal imaging camera as a line scanner, allowing it to reach a scanning angle (field of view, FOV) of up to 120°.

Developed, manufactured and calibrated in Germany, the lenses have unique components, including the germanium lenses typically used in the longwave infrared range (LWIR), where each respective lens is calibrated for the thermal imaging camera.

Enquiries: +27 (0)10 595 1831



COLLABORATION DELIVERS COST-EFFECTIVE SOLUTIONS

In the past two years, Rockwell Automation sub-Saharan Africa and JB Switchgear Solutions have won many large contracts in local and international industrial markets by supplying and serving various industries with a single-source supply of industrial automation information-enabled solutions alongside fully integrated and networked intelligent motor control centres (MCCs).

This collaboration has afforded both companies a strong foothold in a competitive market. By retaining their independence, the Rockwell Automation and JB Switchgear Solutions' collaboration has proven that when company strengths intersect, a more cost-effective, high-performance technical solution can be possible. The relationship is also based on parallel business goals, and is supported by holistic and extensive pre- and after-sales services.

The key differentiator of this collaboration is that the companies are completely independent from one



The Rockwell Automation and JB Switchgear Solutions collaboration provides a cost-effective, high-performance technical solution.

another on technical and commercial levels. As much as Rockwell Automation does have a globally competitive OEM low voltage MCC delivery capability with its Centerline product line, the collaboration brings together the highly competitive, high-performance and compliant Allen-Bradley product portfolio with the highly competitive, high-performance and compliant 'Eagle Series' MCC product line of JB Switchgear Solutions. The 'Eagle



Johan Basson, MD, JB Switchgear Solutions.

Series' product line has proven vastly flexible in configuration and compliance, and delivers a truly tailored MCC solution that meets every demanding requirement – without the high price tag.

Enquiries: +27 (0)11 654 9700

FTTX ADDS VALUE TO COMMUNITIES

There have been fast-paced developments in the implementation of Fibre to the x (FTTX), which includes fibre to business (FTTB) and fibre to home (FTTH). FTTX broadband network architecture, which makes use of optical fibre, offers unsurpassed Internet speeds and a richer broadband experience. It adds value to communities and particularly to gated residential communities and security estates.

"Fibre technology can touch every community and there are remarkable opportunities in the delivery of FTTX solutions in South Africa," says Bradley Hemphill, managing director of EES Live (Pty) Ltd.

Internet is the backbone of most modern communications. As an ever-increasing number of added-value services, such as business, social, security, health, education and government services, are offered online, it becomes more and more important to ensure that a community considers the benefits of rapid, efficient household broadband.

The opportunity that exists, according to the Association of Residential Communities (ARC), is that there are approximately 3500 communities in South Africa in which about five million people live, and that in the region of R12 billion is being spent by Homeowner Associations (HOA) annually.

"After security concerns have been met, which in gated communities is a given, owners look for more value for their investment," says Hemphill. "Communities in which FTTX has been installed become increasingly sought after and the value of property in connected communities increases.

"Fibre creates smart homes, enabling them to be managed remotely and



facilitating video surveillance," says Hemphill.

Open Access Networks

Fibre needs to exist within an Open Access Network (OAN). "In an OAN business model the Ethernet Access Provider (EAP) does not compete with Internet Service Providers (ISP) on the network," explains Hemphill.

"The OAN allows multiple ISPs to compete and use the same network and, in so doing, eradicating the monopoly of the incumbent operator. It allows subscribers (home owners) to choose from the ISPs and maximises freedom of choice, thereby delivering more value and benefits from these choices," Hemphill concludes.

EES Live is a professional services company specialising in networks, data centres, security and building management systems.

Enquiries: +27 (0)21 702 3550

Maximising production through standby power generation solution



Cummins has ensured uninterrupted power supply at Peninsula Beverages (PenBev) after the successful supply, installation and commissioning of three C2250 D5 generator sets and a DMC 300 Master controller to provide standby power to the Parow facility, a Cape Town-based independent bottling company.

Nick Roditis, project manager at Cummins Power Generation, says the 11 kV standby power generation solution features a prime rating of 2000 kVA. "The generators were bought to mitigate production losses during load shedding and power interruptions. They ensure automatic start-up during emergency outages, and can be synchronised with the council mains with the help of the DMC 300 Master Controller and the changeover panel, allowing for seamless transition from utility mains power to generator power during load shedding."

Enquiries: +27 (0)11 589 8400

Introducing Copperweld® Copper-Clad Steel:
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ABB ACQUIRES PIONEER IN 3D INSPECTION TECHNOLOGY

ABB has announced the acquisition of Spanish start-up company NUB3D, a leading innovator of digital, 3D inspection and quality-control solutions.

The acquisition expands the group's portfolio of ABB Ability™ solutions that connect customers to the industrial Internet of Things. ABB Ability builds on the intelligent cloud, using connected devices to generate actionable digital information for a broad range of customers. The two companies have agreed not to disclose the value of the transaction.

NUB3D is a privately owned company headquartered in Barcelona. It supplies 3D white-light scanning sensor technologies, using digital scans to optimise inspection and quality assurance in manufacturing. The sensors can detect defects on a manufactured part with an extremely high level of accuracy.

By combining NUB3D's proven world-class competence in 3D vision and metrology with ABB's brand, worldwide reach, and offering and customer support, ABB will be able to create automated turnkey inspection and quality-control systems for automotive original equipment manufacturers, aerospace companies and customers in other sectors such as metals and plastics.

The technology represents the future of flexible manufacturing, enabling a high level of automation with advanced data analysis that can be used to optimise production processes. NUB3D will become part of the Robotics business of ABB's Robotics and Motion division and the new global application centre for 3D metrology in ABB.

"With this acquisition we are moving a step closer to the factory of the future. As our customers' automation processes become more advanced and production cycles shorten, the ability to efficiently automate quality inspections becomes a compelling competitive advantage," says Sami Atiya, President of ABB's Robotics and Motion division. "Combining robotics and software is pivotal in implementing digitalisation and expanding ABB Ability as a key driver of our Next Level strategy."

Manufacturers increasingly have to improve quality and productivity while accommodating greater product variation and customisation in smaller lots. NUB3D's 3D sensor technology rapidly records and compares highly detailed geometric and surface data with digital CAD models, enabling the automation of inspection of manufactured parts and pieces, helping factories to reduce cycle times while raising quality and

reducing the risk of quality control errors.

Jorge Rodriguez, CEO of NUB3D, says that the ABB Ability platform complements NUB3D's use of cutting-edge digital solutions, and ABB's leading robotics portfolio and vast global footprint will ensure that the company can make the most of its early-mover advantage in integrated robotic inspection solutions.

Enquiries: +27 (0)10 202 5000



ABB and NUB3D have introduced two fully robotised state-of-the-art automatic quality inspection solutions for off- and in-line inspection using NUB3D's 3D white-light sensors. They are marketed under the names InspectPack (left) and FlexInspect.

THE RISK OF PRIORITISING SECURITY OVER FIRE SAFETY

According to Michael van Niekerk, CEO of ASP Fire, people tend to focus on protecting properties from theft or vandalism and ignore the equally important area of fire safety. Electrical fires are the most common sources of outbreaks and he highlights what can be done to prevent fires from causing damage to vital assets in our communities.

"Fire poses a constant threat to every building in South Africa and it usually strikes without warning, often with devastating consequences to property, equipment and life. A fire has no regard for high fences or walls and is immune to burglar alarms and 24-hour security guards," says van Niekerk.

The focus on securing property, equipment and inventory has resulted in vulnerability to fire, partially owing to a lack of knowledge of the fire hazards and risks within our living and working environments, and to a lack of money to spend on fire protection equipment as funds are diverted to seemingly more important issues.

The infrastructure within South Africa is ageing and equipment failure, particularly in the electricity distribution system, can result in large fires that cause significant damage to the substations with

a negative knock-on effect on businesses and homes. Stories of explosions or fires at substations are evidence of this real threat.

"Substation fires attended to by the fire department usually take several hours and require thousands of litres of water to extinguish, an added reason in the current drought, to prevent fires," he adds.

The risk of a fire in the electrical infrastructure within the Bedfordview and Edenvale areas can be mitigated through effective preventative maintenance and through the application of modern automatic fire protection technologies. "There has been recent development in misting fire protection systems, where the effectiveness of water is multiplied a thousand fold by creating water mist droplets with the same diameter as human hair," van Niekerk explains.

These mist droplets evaporate simultaneously into a cloud of steam when they come into contact with fire, rapidly cooling it to below the temperature it can survive at. Automatic heat detection tubes designed to react at 100 °C activate the water mist system to extinguish the impending fire within seconds, before it is able to cause any real damage or grow out of control.

"A standalone, automatic water mist system is cheaper and easier to install than a conventional sprinkler or spray system and

does not need the hundreds of thousands of litres of water, or the many metres of pipework required by a conventional system to put out a fire," he argues.

The adage that 'prevention is better than cure' is applicable more than ever in the current economic and weather climate. A great deal of money can be saved by taking proactive steps to protect critical elements of community infrastructure from fire damage and, by doing so, keeping the proverbial lights on at home.

Standalone water mist systems can also be installed in businesses to protect specific risks in instances where the funds required for a sprinkler system to protect the whole building with the associated water tanks and pumps, are simply not available.

As an accredited fire-risk management and support provider, ASP Fire provides an holistic, proactive and preventative total solutions approach to fire safety. The consultancy designs integrated fire-risk assessments, and provides training and advice on the installation and maintenance of fire detection and suppression systems that meet all necessary regulations and standards, in the home and industrial markets.

Enquiries: +27 (0)11 452 2169



Substation fires usually take thousands of litres of water and hours to extinguish.



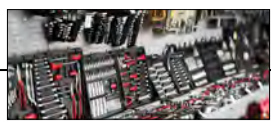
Proactive steps are needed to protect critical elements of our community infrastructure from fire damage.

SOUTH AFRICAN... AND PROUD OF IT!

- Not everyone is aware of the fact that an Olifantsfontein-based company has been supplying vital equipment to the transmission and distribution industry in South Africa and abroad for the past 55 years. McWade Productions was founded in 1965 and is now a leading supplier of locally manufactured Transmission and Distribution Line Hardware, High Voltage Sub Station Interconnecting Clamps up to 765kV, Insulators, Disconnectors, Isolators and Compression Tooling.
- Founded in 1965 and is now a leading supplier of locally manufactured Transmission and Distribution Line Hardware, High Voltage Sub Station Interconnecting Clamps up to 765kV, Insulators, Disconnectors, Isolators and Compression Tooling.
- It has a substantial manufacturing facility operating in accordance with ISO 9001, to local and international specifications.
- On site facilities include a non-ferrous, sand and gravity die-casting foundry, machine shop as well as tool and die-making facilities.
- They provide in-house design, documentation and technical back-up, local and international sourcing of specialised equipment, manufacture, source and supply of full packages for sub stations and line projects and design and consulting services to plan and recommend the most suitable equipment, connections and installation procedures to meet customer requirements.

McWade
Productions (Pty) Ltd

For more information contact Steven Naidoo on
082 904 1105/011 3162262 sales@mcwade.co.za
or visit their website www.mcwade.co.za



MANUFACTURERS

Brady South Africa/Grafo
HellermannTyton
Legrand
Phoenix Contact

DISTRIBUTORS

ACTOM Electrical Products
ARB Electrical Wholesalers
Atlas
Bellco
Citilec
Comtest
Denver Technical Products
Electro Test Instrumentation
Garry Lumpe Imports
HellermannTyton
JDL Electric
Knipex and Wiha
Magnet Electrical Supplies
Major Tech
Makita Industrial Power Tools
MCE Global Suppliers
Phambili Interface
R&C Instrumentation
Radiant Group
Stone Stamcor
Voltex
Waco

CONTACT

ACTOM Electrical Products
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Arvi Ramdass
Atlas
Sales
Bellco
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Citilec
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Denver Technical Products
Mervyn Stocks
Electro Test Instrumentation
Winston Browning
Garry Lumpe Imports
Garry Lumpe
HellermannTyton
Ingrid Nicolaus
JDL Electric
Ashveer Lalla
Legrand
Johan Bosch
Magnet Electrical Supplies
Kevin Govender
Major Tech
Werner Grobbelaar
Makita Industrial Power Tools
Errol Martin
MCE Global Suppliers
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Phambili Interface
Alex Lockyer
Phoenix Contact
Kevin Mann
Radiant Group
Alfred Weldon
R&C Instrumentation
Johan de Villiers
Stone Stamcor
Mark Talbot
Voltex
Hugh Ward
Waco
Sales

LADDERS AND SCAFFOLDING

Atlas
A-frame and extension ladders for industrial and domestic use; scaffolding on request
Bellco
A-frame and extension ladders for industrial and domestic use; scaffolding on request
Brady South Africa/Grafo
Equipment status management tools - Scafftag, Laddertag
Citilec
Full range of ladders and scaffolding
JDL Electric
Full range of ladders and scaffolding
Magnet Electrical Supplies
Rigwell; Lovemore Bros
Voltex
A-frame and extension ladders for industrial and domestic use; scaffolding on request
Waco Industries
A-frame and extension ladders for industrial and domestic use; scaffolding on request

POWER TOOLS AND ACCESSORIES

ACTOM Electrical Products
Full range of power tools and accessories
Atlas
Various brands of drills, grinders and accessories for industrial and DIY
Bellco
Various brands of drills, grinders and accessories for industrial and DIY
Bosch
Power tools for drilling, driving, grinding, cutting, metalworking and woodworking
Citilec
Full range of power tools and accessories
JDL Electric
Full range of power tools and accessories
Magnet Electrical Supplies
Bosch, Black & Decker
Makita Industrial Power Tools
Comprehensive range of corded and cordless power tools and accessories
Phambili Interface
Full range of power tools and accessories
Voltex
Various brands of drills, grinders and accessories for industrial and DIY
Waco
Various brands of drills, grinders and accessories for industrial and DIY

DRAW WIRES AND AIR-DRIVEN SYSTEMS

Atlas
Wiremate pull cord systems
Bellco
Wiremate pull cord systems
Citilec
Full range of draw wires and air-driven systems
Magnet Electrical Supplies
HellermannTyton; Three-D
JDL Electric
Full range of wires and air-driven systems
Voltex
Wiremate pull cord systems
Waco
Wiremate pull cord systems

HAND TOOLS AND ACCESSORIES

ACTOM Electrical Products
Full range of hand tools and accessories
Atlas
Various brands and ranges for professional, general electrical and DIY use
ARB Electrical Wholesalers
Full range of hand tools and accessories
Bellco
Various brands and ranges for professional, general electrical and DIY use
Brady South Africa/Grafo
Handheld printers for cable and wire identification, labels, sleeves
Citilec
Full range of hand tools and accessories
Electro Test Instrumentation
Full range of hand tools and accessories
Garry Lumpe Imports
Full range of Knipex and Wiha German-made hand tools: pliers, wire strippers, side cutters, cable cutters, crimpers, VDE spanners and sockets, screwdrivers, Allen keys and toolkits
HellermannTyton
HYCP240 and HYCP185kT
JDL Electric
Full range of hand tools and accessories
Legrand
Starfix crimper, Colson cable tie tensioner
Magnet Electrical Supplies
HellermannTyton; Major Tech; Gedore
Major Tech
Full range of hand tools, designed by electricians for electricians. Range varies from VDE, 1000 V, insulated hand tools for all electrical requirements
MCE Global Suppliers
MCE handheld crimpers, wire strippers and cable cutters; MCE hydraulic punch and die set
Phambili Interface
Various brands and ranges for professional, general electrical and DIY use
Phoenix Contact
Wide range of handheld tools and accessories
Radiant Group
Full range of hand tools and accessories
Stone Stamcor
Full range of cutting, compression and electrician's tools
Voltex
Various brands and ranges for professional, general electrical and DIY use
Waco
Various brands and ranges for professional, general electrical and DIY use

INSULATION INSTRUMENTS AND ACCESSORIES

ACTOM Electrical Products
Full range of insulation instruments and accessories
Atlas
Various brands available as per customers' requests
Bellco
Various brands available as per customers' requests
Comtest
Full range of Fluke, Midtronic, AFL, Teledyne LeCroy, Meriam, Radian, Microsemi and Siglent meters and testers
Electro Test Instrumentation
Full range of insulation instruments and accessories
HellermannTyton
Range of insulation instruments and accessories
JDL Electric
Full range of insulation instruments and accessories
Magnet Electrical Supplies
HellermannTyton; Major Tech; Fluke
Major Tech
Full range of analogue and digital LV and HV insulation testers

INSULATION INSTRUMENTS AND ACCESSORIES

Phambili
Various brands available as per customers' requests
R&C Instrumentation
Full system power management local and via Internet
Voltex
Various brands available as per customers' requests
Waco
Various brands available as per customers' requests

SEALANTS AND LUBRICANTS

ACTOM Electrical Products
Full range of sealants and lubricants
Atlas
CRC and other well-known brands
Bellco
CRC and other well-known brands
HellermannTyton
Range of sealants and lubricants
JDL Electric
Full range of sealants and lubricants
Voltex
CRC and other well-known brands
Waco
CRC and other well-known brands

STRIPPERS

ACTOM Electrical Products
Full range of strippers
Atlas
Leading brands available
Bellco
Leading brands available
Garry Lumpe Imports
Knipex cable wire strippers
Legrand
Starfix multi-tool stripper/crimper
Magnet Electrical Supplies
Full range of strippers
HellermannTyton
Range of strippers
JDL Electric
Full range of strippers
Major Tech
Complete range of wire strippers and cable knives
MCE Global Suppliers
MCE wire strippers
Phambili Interface
Leading brands available
Phoenix Contact
Full range of cable strippers
Stone Stamcor
Full range of cable strippers
Voltex
Leading brands available
Waco
Leading brands available

WELDING INSTRUMENTS AND ACCESSORIES

Atlas
Full range of welding instruments and accessories
JDL Electric
Full range of welding instruments and accessories
Magnet Electrical Supplies
Afrox

CABLE TESTING/CABLE FAULT LOCATION

ACTOM Electrical Products
Full range of cable testing and cable fault location instruments
Atlas
Leading brands available on request
Bellco
Leading brands available on request
ARB Electrical Wholesalers
Full range of cable testing and cable fault location instruments
Comtest
Fluke, Lantek 7CAT7 tester, Ideal Lantek range and Beha
HellermannTyton
T185 and T534
JDL Electric
Full range of cable testing/cable fault location instruments
Magnet Electrical Supplies
HellermannTyton; Major Tech; Fluke; Eberle
Major Tech
Cable testers for location, length and LAN testing
Voltex
Leading brands available on request
Waco
Leading brands available on request

EARTH ELECTRODE RESISTANCE

Atlas
Full range of electrode resistance instruments
Bellco
Full range of electrode resistance instruments
Comtest
A full range of Fluke instruments
Electro Test Instrumentation
Full range of electrode resistance instruments
JDL Electric
Full range of earth electrode resistance testers
Magnet Electrical Supplies
Surgetek
Major Tech
Digital resistivity, resistance and clamp-on earth testers
Voltex
Full range of electrode resistance instruments
Waco
Full range of electrode resistance instruments

ENVIRONMENTAL TESTERS

ACTOM Electrical Products
Full range of humidity temperature, wind and sound environmental testers
Atlas
Various well-known brands available
Bellco
Various well-known brands available
Comtest
Full range of Comtest and Fluke environmental testing instruments
Electro Test Instrumentation
Full range of environmental testers
JDL Electric
Full range of environmental testers
Major Tech
Full comprehensive range of environmental testers
Voltex
Various well-known brands available

HV PROBES

ACTOM Electrical Products
Full range of HV probes
Atlas
Various well-known brands available
ARB Electrical Wholesalers
Full range of HV probes
Bellco
Various well-known brands available
Comtest
Fluke
Denver Technical Products
High voltage probes, transducers and measurement for ac and dc applications
Electro Test Instrumentation
Full range of HV probes
HellermannTyton
Full range of HV probes
JDL Electric
Full range of HV probes
Magnet Electrical Supplies
HellermannTyton; Major Tech; Catu; Fluke
Voltex
Various well-known brands available

INFRARED THERMAL IMAGING

ARB Electrical Wholesalers
Full range of infrared thermal imagers
Atlas
Various well-known brands available
Bellco
Various well-known brands available
Comtest
Full range of thermal imagers
Electro Test Instrumentation
Full range of thermal imagers
HellermannTyton
T151
JDL Electric
Full range of infrared thermal imagers
Magnet Electrical Supplies
HellermannTyton; Major Tech; Fluke
Major Tech
Full range of IR thermal imagers
R&C Instrumentation
Infrared inspection windows; infrared thermal imagers, fixed and portable
Voltex
Various well-known brands available
Waco
Various well-known brands available

COMPLIANCE TESTERS

ACTOM Electrical Products
Full range of compliance testers and contractor's kits
ARB Electrical Wholesalers
Full range of compliance testers
Atlas
Various well-known brands available
Bellco
Various well-known brands available
Comtest
Fluke
HellermannTyton
T419
JDL Electric
Full range of compliance testers
Magnet Electrical Supplies
HellermannTyton; Fluke
Major Tech
Complete range of compliance testers for all CoC tests
Voltex
Various well-known brands available

CLAMP-ON METERS

ACTOM Electrical Products
Full range of clamp-on meters
ARB Electrical Wholesalers
Full range of clamp-on meters
Atlas
Various well-known brands available
Bellco
Various well-known brands available
Comtest
Full range of clamp-on meters
Denver Technical Products
Clamp on metering units for all ranges of current, for measurement of ac and dc currents
Electro Test Instrumentation
Full range of clamp-on meters
HellermannTyton
JBM079
JDL Electric
Full range of clamp-on meters
Magnet Electrical Supplies
HellermannTyton; Major Tech; Chavin Arno; Fluke; Three-D



CLAMP-ON METERS

Major Tech
Comprehensive range of ac and acdc clamp meters
Phoenix Contact
Full range of clamp-on meters
Voltex
Various well-known brands available
Waco
Various well-known brands available

EARTH-LOOP IMPEDANCE TESTERS

ACTOM Electrical Products
Full range of earth-loop impedance testers
ARB Electrical Wholesalers
Full range of earth-loop impedance testers
Atlas
Various well-known brands available
Bellco
Various well-known brands available
Comtest
Full range of earth-loop impedance testers
Electro Test Instrumentation
Full range of earth-loop impedance testers
HellermannTyton
Full range of earth-loop impedance testers
JDL Electric
Full range of earth-loop impedance testers
Magnet Electrical Supplies
Fluke; Major Tech; HellermannTyton; Three-D
Major Tech
Full range of earth-loop impedance and PSC testers
Voltex
Various well-known brands available

POWER ANALYSERS

ARB Electrical Wholesalers
Full range of power analysers
Atlas
Various well-known brands available
Bellco
Various well-known brands available
Comtest
Power analysers from Fluke, RPM
Denver Technical Products
Power analyser range of products, for handheld and permanent installation applications
Electro Test Instrumentation
Full range of power analysers
HellermannTyton
Full range of power analysers
Impact Power Innovations
Various well-known brands available
JDL Electric
Full range of power analysers
Magnet Electrical Supplies
Major Tech; HellermannTyton; Impact Energy
Major Tech
Compact power analysers, power quality analysers, current loggers, current and voltage loggers, leakage loggers
Voltex
Various well-known brands available

MULTIMETERS

ACTOM Electrical Products
Full range of multimeters
ARB Electrical Wholesalers
Full range of multimeters
Atlas
Various well-known brands available
Bellco
Various well-known brands available
Comtest
Full range, from low-cost analogue to high-resolution digital multimeters from Amprobe, Beha and Fluke
Denver Technical Products
Fluke range of multimeters
Electro Test Instrumentation
Full range of multimeters
HellermannTyton
TBM878
JDL Electric
Full range of multimeters
Magnet Electrical Supplies
Major Tech; HellermannTyton; Fluke; Three-D
Major Tech
Extensive range of multimeters designed for all electrical measurement requirements
Voltex
Various well-known brands available
Waco
Various well-known brands available

VOLTAGE TESTERS

ACTOM Electrical Products
Full range of voltage testers
ARB Electrical Wholesalers
Full range of voltage testers
Atlas
Various well-known brands available
Bellco
Various well-known brands available
Comtest
Voltage testers from Amprobe, Beha
Denver Technical Products
Full range of voltage transducers for permanent installations
Electro Test Instrumentation
Full range of voltage testers
HellermannTyton
TVP1000
JDL Electric
Full range of voltage testers
Magnet Electrical Supplies
Major Tech; HellermannTyton; Fluke; Three-D
Major Tech
Comprehensive range of voltage testers and 2-pole voltage testers

VOLTAGE TESTERS

Phoenix Contact
Full range of voltage testers
Voltex
Various well-known brands available

MEASURING INSTRUMENTS FOR SITE SURVEYING

Comtest
Fluke industrial and Amprobe
JDL Electric
Full range of instruments for site surveying
Magnet Electrical Supplies
HellermannTyton; Three-D; Fluke
Major Tech
Laser distance meters and video borescopes

OSCILLOSCOPES

Atlas
Various well-known brands available
Bellco
Various well-known brands available
Comtest
Nicolet, LeCroy, Gould, Fluke industrial: ScopeMeter, BK precision series
Electro Test Instrumentation
Full range of oscilloscopes
JDL Electric
Full range of oscilloscopes
Magnet Electrical Supplies
Fluke; Major Tech
Major Tech
Range of handheld digital storage oscilloscopes; digital storage oscilloscopes; True RMS multimeter and oscilloscope
Voltex
Various well-known brands available

PHASE TESTING

ACTOM Electrical Products
Full range of phase testing equipment
ARB Electrical Wholesalers
Full range of phase testing equipment
Atlas
Various well-known brands available
Bellco
Various well-known brands available
Comtest
Beha Fluke phase testers
Electro Test Instrumentation
Full range of phase testers
HellermannTyton
T70
JDL Electric
Full range of HV phase testers
Magnet Electrical Supplies
Major Tech; Catu; Surgetek; Fluke; HellermannTyton
Major Tech
Full range of phase rotation meters and non-contact safety phase indicators
Voltex
Various well-known brands available

TEMPERATURE TESTERS

ARB Electrical Wholesalers
Full range of temperature testers
Atlas
Various well-known brands available
Bellco
Various well-known brands available
Comtest
HART, Amprobe, Fluke and Beha
Electro Test Instrumentation
Full range of temperature testers
HellermannTyton
T500k and T502k
JDL Electric
Full range of temperature testers
Magnet Electrical Supplies
Fluke; HellermannTyton; Three-D; Major Tech
Major Tech
Full range of infrared and K-type thermometers
R&C Instrumentation
Portable and fixed infrared thermometers; Ex- and IS-rated infrared thermometers
Voltex
Various well-known brands available

INSULATION TESTERS

ACTOM Electrical Products
Full range of insulation testers
ARB Electrical Wholesalers
Full range of insulation testers
Atlas
Various well-known brands available
Bellco
Various well-known brands available
Comtest
Fluke, Amprobe
Electro Test Instrumentation
Full range of insulation testers
HellermannTyton
TIN6D and TIN7DOLED
JDL Electric
Full range of insulation testers
Magnet Electrical Supplies
Fluke; HellermannTyton; Three-D; Major Tech
Major Tech
Full range of analogue and digital LV and HV insulation testers
Voltex
Various well-known brands available

POLARITY/ELCB TESTERS

ACTOM Electrical Products
Full range of polarity/ELCB testers
ARB Electrical Wholesalers
Full range of polarity/ELCB testers
Atlas
Various well-known brands available
Bellco
Various well-known brands available
Comtest
Beha, Fluke
HellermannTyton
Range of polarity/ELCB testers
JDL Electric
Full range of polarity/ELCB testers
Magnet Electrical Supplies
Major Tech; Fluke; Three-D; HellermannTyton
Major Tech
Range of ELCB testers and industrial RCD/ELCB testers
Voltex
Various well-known brands available

STANDARD METERS

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Atlas
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Bellco
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Comtest
Fluke, Amprobe
HellermannTyton
Range of standard meters
JDL Electric
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Magnet Electrical Supplies
Fluke; Three-D; Major Tech; HellermannTyton
Major Tech
Full range of standard meters
MCE Global Suppliers
MCE ammeters, voltmeters
Phoenix Contact
Full range of standard meters
Voltex
Various well-known brands available
Waco
Various well-known brands available

TEST LEADS

ARB Electrical Wholesalers
Full range of test leads
Atlas
Various well-known brands available
Bellco
Various well-known brands available
Comtest
Full range of Fluke and Amprobe test leads
Electro Test Instrumentation
Full range of test leads
HellermannTyton
TAL25 and TALTIN
JDL Electric
Full range of test leads
Magnet Electrical Supplies
Fluke; Three-D; Major Tech; HellermannTyton
Major Tech
Range of modular test lead sets and croc clips in PVC and silicone insulation
Voltex
Various well-known brands available
Waco
Various well-known brands available



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FOURTH GENERATION BATTERY DISCHARGE TESTER LAUNCHED

THE Torkel 900 is Megger's latest battery discharge tester for comprehensive results when testing battery capacity.

The Torkel concept was released in the 80s as the first portable battery discharge tester that had automated resistance regulation to keep constant current. The Torkel 900 series is the 4th generation product and introduces a new way of regulating the discharge current, with the benefit of a dynamic power/voltage range. The new design has enhanced safety features including spark free connection and emergency safety fuse.

Stationary back-up batteries are present in

substations and many other areas. The Torkel 900 series is used to perform load tests or discharge tests, which is the only way to determine a battery system's actual capacity. Tests can be conducted at constant current, constant power, constant resistance or in accordance with a pre-selected load profile. Together with the cell voltage logger, BVM, now connected directly to the Torkel 900, becomes a complete stand-alone discharge test system.

The Torkel is connected to the battery, the discharge current and the alarm levels (voltage, capacity, time) are set. After starting the discharge, Torkel keeps the current constant at the preset

level. When the voltage drops to a level slightly above the final voltage, Torkel issues an alarm. If the voltage drops so low that there is a risk of deep discharging the battery, Torkel shuts down the test. All values are stored in Torkel and can be transferred via a USB-stick to a PC for evaluation.

Testing can be carried out without disconnecting the battery from the equipment it serves. Via a dc clamp-on ammeter, Torkel measures total battery current while regulating it at a constant level. In addition, the high discharge capacity of Torkel shortens the test time. Discharging can take place at up to 220 A, and if higher current is needed, two



or more Torkel units or extra load units, TXL, can be linked together.

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DLRO 100

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- Operational IP54
- Smooth DC output
- High accuracy
- Dual Ground™ test method
- High noise immunity
- Default 10A, 50A, 100A and variable 10-110A settings

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Megger
Power on

RELIABLE, CLEAN AND STABLE POWER

New to Vert Energy's range of electric power generation (EPG) components are NSM synchronous alternators, welding sets, permanent magnet generators (PMG) and PTO generators, which provide reliable, clean and stable power.

"Vert Energy's standby and power solutions service to generator set builders encompasses an extensive range of dependable EPG components for general industry and the mines, as well as commercial and industrial sectors," says Ryan Robertson, director, Vert Energy. "These solutions focus on areas that are off-grid and for industries where power supply is neither constant, nor reliable".

The company's product portfolio, which is extended on an ongoing basis to meet exact market demand, now includes NSM two-pole 3 000 rpm alternators, from 2.2 kVA to 22 kVA in 220 V and 380 V.

The company identified a growing need for dependable portable power – particularly for use in agriculture and mining, for maximum efficiency of power tools in construction and for small scale commercial and residential applications. Portable generators are not only essential in the event of a power outage, but are also useful in remote places where conventional power is unavailable.

Enquiries: +27 (0)11 453 9669



Vert Energy's range of electric power generation (EPG) components now includes NSM synchronous alternators, welding sets, permanent magnet generators (PMG) and PTO generators that provide reliable, clean and stable power.

600 W IN A FULL BRICK CASE

MTM Power GmbH, has introduced the PMD-600WFB series full brick case dc/dc converters measuring 116,8 x 61,0 x 12,7 mm and providing an output power of 600 W. The series has an input range of 18 to 36 Vdc and 36 to 75 Vdc and output voltages of 12 Vdc, 28 Vdc or 32 Vdc.

The converters work in a temperature range of -40 to +100 °C, have an isolation voltage of 1,5 kVdc and a transient response time of <500 µs. They have an efficiency of up to 92% and are built in a plastic case with aluminium base plate. Additional technical features are under-voltage lockout and overvoltage protection as well as external output voltage trimming. MTM Power is represented in South Africa by Vepac Electronics.

Enquiries: +27 (0)11 454 8053



RELATIVE HUMIDITY SENSOR FOR TOUGH PROCESSES

Michell Instruments, represented locally by Instrotech, has on offer its new HygroSmart HS3 sensor, now with I2C communications protocol/slave device (BUS output), that supports a maximum speed of 100 kHz. Each slave on the I2C bus holds an individual 7-bit device address. The address byte is then followed by the op-code and eventually the payload.

Because it's designed to withstand the kind of harsh conditions found in industrial processes, unlike many 'disposable' probes that have a short life within harsh conditions before needing to be replaced, the HygroSmart HS3 sensor has a polymer tile to give long-term reliable measurements. In addition, it also has an accuracy of 0.8%RH, making it among the most accurate and reliable RH sensors on the market, as well as allowing for longer recalibration periods. This not only gives peace of mind to process operators, but also provides a low life-time cost of ownership when compared to the disposable sensors.

Also available is the complete HygroSmart HS3 probe that consists of a solid, corrosion-resistant probe body with an interchangeable sensor. The probe offers voltage outputs of 0-1 V, 0-2.5 V, 0-5 V, 0-10 V and digital output signal Modbus RTU over RS485 2-wire. When recalibration is due, the old HygroSmart HS3 sensor is simply

exchanged for a new, freshly calibrated one. This procedure takes only a few seconds to carry out with the probe itself remaining installed. Replacing just the sensor, rather than the whole probe, is quick and simple, and it saves users money over the lifetime of the probe.

In most industrial applications, RH probes have to withstand vibration, exposure to water, occasional heavy shocks and high levels of electrical interference. The HygroSmart HS3 body is designed to cope with all these environmental factors. As well as the solid body, the probe has a 10 bar pressure rating, rfi/emc electrical noise approvals and IP67 ingress protection rating.

With the HS3, users can simply plug in a pre-programmed sensor and easily and seamlessly test wiring and alarm points. It is also possible to use the HS3 probe's features for an OEM HS3 sensor as a diagnostic tool during testing and commissioning.

As well as its ability to withstand harsh process conditions, the HygroSmart HS3 probe gives control to the user, as it is 100% configurable. This gives users the ability to alter their RH and temperature measurements to keep step with changes or developments in their process, with no extra cost.

Enquiries: +27 (0)10 595 1831

VOLTAGE, CURRENT AND POWER UNITS FOR DEMANDING APPLICATIONS



KEITHLEY, a world-leading source measurement unit (SMU) instrument developer represented locally by Comtest, offers a comprehensive range of voltage, current and power units. Recent innovations include the embedded TSP (Test Script Processor), industry-first graphical touchscreen interface, and other performance enhancements. More than 20 models and systems have been designed for demanding applications in research labs, on the engineer's bench, and in high speed ATE systems. Instruments with dc and pulsed output levels from 10 W to 2 000 W are available.

Some of the popular options are:

- 2400 Graphical Series source meter, one channel; 20 - 1 000 W.
- Optical source meter, one channel; < 50 W.
- 2600B source meter, one or two channels; 30 W dc; 200 W pulse.
- 2650 high power source meter, one channel; 200 W dc; 2 000 W pulse.

Tektronix and Keithley is represented in South Africa by Comtest.

Enquiries: +27 (0)10 595 1821

MOBILE POWER FOR KAMOA-KAKULA MINE DEVELOPMENT IN THE DRC

The development of the world's largest high-grade copper deposit - the Kamoa-Kakula Copper Project in the Democratic Republic of Congo (DRC) - now is running on power from the DRC's national grid using a mobile substation recently commissioned by South Africa's Gauteng-based Zest Energy.

The 120/11 kV mobile substation will serve the construction of the planned initial mine at Kamoa-Kakula, a project whose existing mineral resource has been independently verified as Africa's largest copper find. Kamoa-Kakula's principal owners are Ivanhoe Mines, Zijin Mining and the government of the DRC.

"Owing to the high cost of running on diesel generators, the mine developers decided to purchase a mobile substation to interface with the network of the DRC power utility SNEL to provide power during the construction phase of the project," Alastair Gerrard, managing director at Zest Energy, says.

Although the substation will not be moved frequently, Gerrard says being mobile allowed for quick and hassle-free construction and commissioning, and gives the mine the added flexibility of deploying the substation to other areas of its operations when needed in the future.

Zest Energy - part of the Zest WEG Group - undertook the design, manufacture, supply, testing, delivery, installation and commissioning of the complete mobile substation, including the trailer, transformer and related electrical equipment. It also provided a protection system, earthing, site work (with full commissioning and testing) and site training.

The project began in February 2016, and the unit was commissioned and handed over to the mine developer in October 2016, in line with a challenging delivery deadline of nine months.

"Our strong network within the WEG Group, of which Zest WEG Group is part, allowed us to work with WEG Transmission and Distribution in Brazil on transformer design, manufacturing and factory testing," Gerrard says. "We involved WEG Transformers Africa - also a Zest WEG Group company - when it came to site assembly and testing of the mobile transformer."

The commissioning process included final assembly of the transformer, oil filtration and purification, and conducting of a full spectrum of transformer tests, as well as on-site testing of all supporting substation equipment. To ensure strict compliance, all commissioning and testing was done in conjunction with SNEL to meet contractual and performance requirements.

Skills transfer was facilitated by operator training conducted by Zest Energy to all selected mine personnel, ensuring that the substation was left in safe hands, with a strong after-sales service to respond to any further customer requirements.

Enquiries: +27 (0)11 723 6000



All supporting ancillary components fitted to the mobile substation and final preparations get underway to commence with connection to the SNEL electrical network.

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RELIABLE NEEDLE-NOSE COMBINATION PLIERS

KNIPEX needle-nose combination pliers are essential for the discerning electrician's toolbox. The pliers are ideal for all common installation and repair work that includes gripping, bending, holding, pulling and turning of various workpieces. The slim head design and anti-twist, pointed jaws make them handy to use when working in confined areas.

"The pliers include a special convex contour on one jaw, making gripping flat parts extremely secure," says Garry Lumpe.

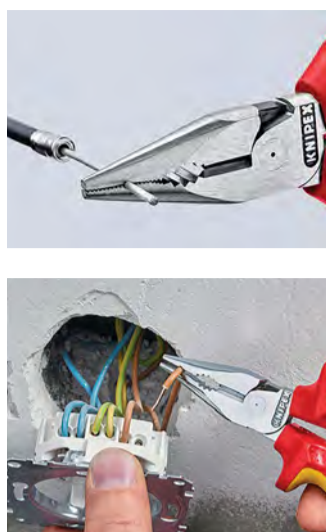
KNIPEX needle-nose combination pliers have the following features:

- A pulling groove in the gripping area permits small

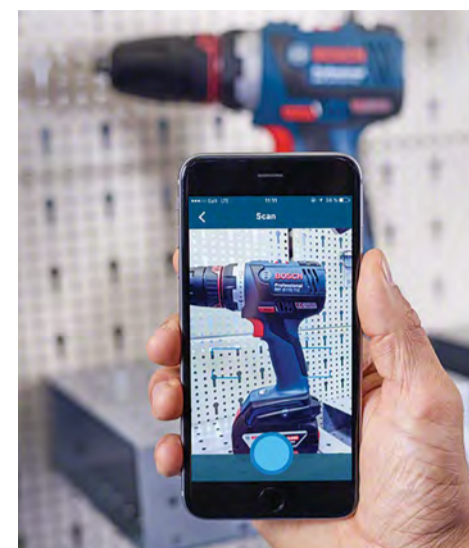
parts such as nails, pins and bolts to be held and pulled without slipping.

- Special hardened cutting edges and high leverage joint for easy cutting of soft, medium-hard and hard wire.
- Secure three-point gripping of flat workpieces.
- Versatile pipe gripping zone.
- Long service life and stable tips.
- Available with non-slip plastic handles or multi-component grips.
- Forged from high-grade special German tool steel; oil-hardened.

Enquiries: +27 (0)11 396 4065



BOSCH POCKET ASSISTANT APP



Bosch Pocket Assistant helps tradespeople find the right tool or accessory quickly and effortlessly. As an extension of the Bosch Toolbox app, the Bosch Pocket Assistant is available free of charge as an add-on. "All it takes is two simple steps: open the Pocket Assistant app and scan the Bosch product or accessory packaging using a smartphone, and you will have access to all available information about the product, including technical details and application videos," Bosch Professional Senior Brand Manager Campbell Mhodi explains.

The Pocket Assistant goes a step further by giving recommendations as to which accessories are best suited and tradespeople have the added convenience of being able to order tools and accessories directly online via the app.

The Pocket Assistant is available as a free add-on to the Bosch Toolbox app in the Google Play Store and in the Apple App Store for smartphones with Android and iOS operating systems.

"The Pocket Assistant app is confirmation that Bosch is systematically making use of the possibilities of networking and the increasing use of smartphones to deliver innovative solutions for professionals," Mhodi concludes.

Enquiries: +27 (0)11 651 9854

DIGITAL LOW RESISTANCE OHM METER

Augmenting Megger's DLRO10 and 10X range, the DLRO10HDX combines ultimate simplicity of operation with a rugged IP65 case designed for stable ground and bench operation and provides memory storage.

The units are powered from either rechargeable battery or mains power making them suitable for continuous testing in production line/repetitive use environments. Rotary switch controls are simple and easy to operate in all weather conditions and with gloved hands. A large, clear, backlit LCD display is easy to read from a distance. The DLRO10HDX provides significantly enhanced compliance and is capable of delivering 10 A into measurements up to 250 mΩ and 1 A into measurements up to 2.5 Ω. The duration of each test may be up to 60 seconds.

The DLRO10HDX is rated CAT III 300 V provided the optional terminal cover is fitted to the instrument. It provides five test modes each of which is selected through a simple rotary control on the mode selection rotary switch. All memory functions, delete, download to PowerDB and recalling test results are accessible via the 'range selection' rotary switch. A simple control panel enables easy navigation for configuration settings.

The removable lid facilitates easy test lead connection and operational ingress protection is IP 54 (battery power only) ensuring protection from the elements. In addition, the 7 Ah lead acid battery provides extended operation.

Enquiries: +27 (0)11 391 3832

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CORDLESS: THE NEW 'BIG THING' IN POWER TOOLS

Cordless is 'the new big thing' in power tools and two tools from Black+Decker that have this capability, on top of being versatile, are the Multievo and the power screw driver.

The Black+Decker Multievo is an ideal multi-tool, offering the patented ability to convert into different power tools when combined with different accessories. The Black+Decker 18V Li-Ion Multievo comes with a starter kit which includes a drill driver head and two 1.5 Ah batteries in a kit box. It also has 10 torque settings and the ability to convert into different power tools simply by changing the head. The battery holds a charge for 90 days when idle, so there is no need to recharge between each use and it comes with an easy to change spare battery.

Additional heads can be purchased and include the Multievo Multi-tool: Jigsaw head; scissor attachment, impact driver; hammer drill attachment; trim saw attachment; router attachment; inflator attachment; reciprocating saw attachment; sander attachment; and oscillating attachment.

The compact Black+Decker 3.6 V Li-ion screwdriver has a right angle attachment that allows for eight pivoting positions to access all areas. It has an LED work light for visibility in dark areas, hidden corners, edges and inside furniture. The 1.5 Ah battery, once charged, holds its charge for up to 18 months when idle.

Enquiries: +27 (0)11 472 0454



POWER TOOLS WITH LITHIUM-ION BATTERIES

RS COMPONENTS (RS), trading brand of Electrocomponents plc (LSE:ECM), has announced the availability – from leading manufacturers such as Bosch, DeWALT and Makita – of a wide range of power tools that use lithium-ion (Li-ion) batteries.

The power tools are ideal as a replacement for those that currently run on nickel-cadmium (NiCd) batteries, which have been widely used in power tools for many years. Previously, the advantage of this type of cell was that NiCd batteries would maintain a steady output voltage until they were almost completely depleted, whereas the voltage offered by alkaline or lead-acid types, for example, would drop with depletion of the battery.

However, the cadmium used in this type of cell is carcinogenic and highly toxic and thus impacts on the environment when disposed in landfill. The EU Batteries Directive 2013/56/EU previously included an exemption for NiCd batteries used in power tools but this was removed as of 31 December 2016 and new NiCd power tool batteries can no longer be made available to the market.

Li-ion battery powered tools are not interchangeable with NiCd types so upgrades in power tools will be required. Key advantages of Li-ion batteries include: no memory effect; virtually no self-discharge; and the ability to be recharged at any time, regardless of the current state of charge. They are also smaller in size and lower in weight than their equivalent NiCd versions. These advantages mean that manufacturers can create higher voltage and higher capacity batteries and therefore a longer run time without increasing the weight or size for the equivalent NiCd version.

The new range of power tools from RS Components contributes to the range of RS solutions supporting plant maintenance programmes.

Enquiries: +27 (0)11 691 9300



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MAJOR TECH'S RANGE OF CLAMP METERS

MAJOR TECH strongly recommends that clients consider the worst case scenario they are likely encounter in their fields and then determine which category is needed, before purchasing a new clamp meter. Once this has been established, they should choose a clamp meter designed for the highest category they could be working in and look for one with an amperage rating and category matching their needs.

Clamp meters are ideal for spot checks and verifying system conditions before deploying more specialised tools and incurring additional costs. Modern clamp meters designed to meet IEC 61010-1 standards should clearly mark all category information and the maximum voltage rating.

Sales manager Werner Grobbelaar explains that Major Tech's clamp meter range includes CATIV 600 V rated clamps with NCV, and range from high resolution dc mA measurement for process loop to 3000 A ac for heavy industry. The clamp meters are available in ac/dc, true RMS and average reading. "The range includes various jaw sizes, i.e. 6 mm process current clamp, 10 mm open jaw clamp, up to a 150 mm flexi clamp. The functionality of the CATIV rated clamps are ideal for hazardous and arduous work conditions," he says.

The MT750, just one of the clamp meters available from Major Tech, is a slimline ac clamp meter that measures ac current to 1000 A, including measurements such as acV, dcV, resistance and continuity buzzer. The MT750 has been designed, manufactured and tested according to IEC 61010. Its teardrop-shaped jaw allows

for easy use in crowded cable areas and, with its slim construction, the clamp meter fits right into a pocket.

Enquiries +27 (0)11 872-5500



CRIMPING PLIERS DESIGNED FOR MAXIMUM EASE OF USE

Phoenix Contact's self-adjusting Crimpfox Centrus crimping pliers for end sleeves enable efficient, user-friendly connection. The pliers' ergonomic design and improved mechanics facilitate process-reliable end sleeve crimping.

The compact crimping pliers feature a particularly short handle width for ease of holding and operation. Owing to the new design concept, the manual force required for optimal crimping results has been reduced by up to 30 percent. In addition, the recoil forces that occur when opening the tool have been reduced considerably.

The product family offers two sizes, each with a square or hexagonal crimping shape that covers cross sections from 0.14 to 6 mm² or 0.14 to 10 mm², respectively. A robust head cover provides valuable protection from mechanical stress or when the tool is dropped. The crimping pliers facilitate simple crimping of isolated, non-isolated, and twin end sleeves across all applications and deliver improved efficiency, ease of use, and tool quality.

Enquiries: +27(0)11 801 8200



Midi torch for hazardous areas

Wolf Safety has introduced the ATEX LED M-85 midi torch, a high power primary cell LED midi torch for use in potentially explosive gas, vapour, mist and dust atmospheres.

Available from Denver Technical Products, the torch is ATEX and IECEx certified and the high powered LED light source gives light output up to 189 lumens. The bespoke optics deliver a high intensity narrow beam with a lower output wide angle fringe light, making it ideal for inspection and maintenance work in conditions of darkness or reduced visibility.

The torch is safe for use in Zones 0 (gas groups IIC/ T3/4) and 20 (dust group IIIB / T 200 °C), has a gas ambient temperature range from -40 °C to 40 °C and is approved for Group I M1 mining areas.

The single-handed push button switch has a rubberised switch cover and raised surface for easy operation even with gloved hands.

The torch body enclosure has excellent chemical resistant properties and the torch has battery duration of up to seven hours.



Enquiries: +27 (0)11 626 2023

TAGGING FOR TRACEABILITY



It is important to have products in the market clearly marked.

The benefits of having products marked clearly once in the marketplace have become increasingly important. According to Banding & Identification (ID) Solutions Africa's Matthew Campbell, major players in the power utility, petrochemical and hose-assembly industries deem the tagging of any installations or assembly to be essential. In addition, the tags must be able to withstand highly-corrosive environments.

All the characters, carriers, strips and cable ties comprising the Easy Read (from Band-It) system are manufactured from Grade 316 stainless steel. The characters are simply slid onto the carrier or strip in the necessary configuration, which is then installed using a Band-It stainless-steel tie. Alternatively, the characters can be slid directly onto a 10 mm or smaller cable tie, thereby creating a self-contained 'wrap' tag.

Letters, numbers and symbols for the Easy Read system are available in bags of ten or 100, as well as in Easy Read kits. The product is available from Banding & ID Solutions Africa, the local distributor for Band-It of the US.

Enquiries: +27 (0)11 974 0424

VERMONT SALES ANNUAL OPEN TRADE DAY

VERMONT SALES director Ryan Hunt believes that the company's 'Open Day' - to be held on 24 and 25 March - will be its largest to date. He says that a large contingent of suppliers from Germany, America, Austria, the UK and Africa have committed to the Open Trade Day, which will give Vermont's dealers the opportunity to gain valuable insight and pick up on world hardware trends. This year, Vermont has allocated additional space to the Open Day to allow its dealers more time to experience its international basket of brands and get to know the Vermont Sales team.

The two-day event will be staged at Vermont's specially converted warehouse, which hosts rows of power tools and accessories. Demonstrations will take place throughout both days. A full range of power tools and accessories will be on display and visitors will be able to feel and test the products with international and local experts on hand to answer questions and give advice.

"It's a great opportunity to view latest tool technology and see the tools in action during the event. Some of the power tools and accessories are mind-boggling, with new brands and products taking tools and accessories to completely a new level," says Dale Engelbrecht, Vermont Sales' commercial director.

Customers can sign up on the day for any of Vermont's many training courses, which are free to all its dealers.

Enquiries:
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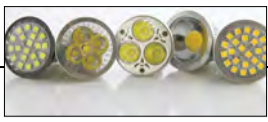
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The Power to Surprise





DISPUTES – REMEMBER THE FLUORESCENT LIGHT FITTING

In our previous discussion of the Occupational Health and Safety Act (Act 85 of 1993), in particular the Electrical Installation Regulations 2009, we discussed the certificate for commencement of work and permission to connect installation work. We also worked through Regulation 9, which details the issuing of the Electrical Certificate of Compliance. In Regulation 10, we'll look at disputes. But before we get too involved, let's carefully read through the regulation first.

Regulation 10: Disputes

- (1) Should a dispute arise over the interpretation of a health and safety standard referred to in regulation 5(1) between a user, a registered person, an electrical contractor, an approved inspection authority for electrical installations or a supplier, as the case may be, an affected person may appeal against that interpretation to the chief inspector.
- (2) A person who refers a dispute referred to in sub-regulation (1) shall serve a notice of dispute, setting out fully the nature and grounds of the dispute, on both the chief inspector and the person whose interpretation he or she is disputing, by personally delivering the notice of dispute or sending it by registered post.
- (3) The person whose interpretation is disputed shall within 14 working days of the date on which he or she received the notice of dispute, forward a notice setting out the reasons for his or her interpretation to the chief inspector.
- (4) The chief inspector shall, after having considered the grounds and the cause of the dispute, confirm, set aside or vary the interpretation of the safety standard in question or substitute it for the interpretation, which in the opinion of the chief inspector, ought to have been given.

I trust you have read the above carefully, so the following should be clear.

One Monday morning you get a complaint from an owner, a user or a lessor of premises at which you did an electrical installation, not that long ago. The complaint is that you issued a fraudulent Certificate of Compliance. It transpires that after you completed your work, the owner, user or lessor employed someone to remodel the kitchen. The kitchen contractor contracted his regular electrical contractor to install the new power points – new stove isolator point, socket outlets, etc.

Upon completion, the electrical contractor tested the installation for the purpose of issuing an Electrical Certificate of Compliance and found the fluorescent light fitting in the kitchen not earthed. Now the owner, user or lessor wants you to return to site, inspect the complete installation and re-issue the Certificate of Compliance, which in his opinion had been issued fraudulently. The reason? One measly light fitting was not earthed. Eish!

Before long, you, the owner of the new kitchen and the other electrical contractor are locked in a difference of opinion. You decide it is time to show the other contractor – who is relatively new to your neck of the woods – who's the big dog in this town. This takes care of Regulation 10 (1).

You duly set out to serve in person, a 'notice of dispute' to the other contractor and send a copy of the said 'notice of dispute' by registered mail to the chief inspector as required by the Electrical Installation Regulations 2009. You base your argument on SANS 10142-1 Clause 6, which states:

6.12.3.2: The following conductive parts do not need to be earthed:

- (a) exposed conductive parts of fixed electrical equipment that are
 - (1) out of arm's reach from the floor (or walking) level,
 - (2) out of arm's reach from a structure that is bonded to earth,
 - (3) not exposed to the weather or to the condensation, dripping, splashing or accumulation of water, and
 - (4) not touching a conductive surface.

So what is wrong? The metal-bodied fluorescent fitting is mounted on a non-conductive plasterboard ceiling approximately 2.7 m from the floor. That, mister, is 200 mm higher than arm's reach. It is also further than 2.5 m from the stove, which is bonded to earth and the installation is indoors, in other words, not exposed to the weather. So, that takes care of 10 (2).

The other contractor takes up your challenge and responds to the chief inspector – within three days, let alone the 14 working days allowed by the Regulations – his intent to dispute your interpretation. He includes in his response notice the following from SANS 10142-1 Clause 6:

6.12.3.1: The following conductive parts shall be earthed:

- (f) conductive parts of discharge luminaires and equipment that need special earthing arrangements; and
- (g) all Class I equipment.

And this takes care of 10 (3)

Rats! You only quoted the bit of SANS 10142-1 you needed to help make your case and completely forgot that the conductive metal-bodied fluorescent fitting is defined as Class I equipment. Second, you forgot you are explicitly required to earth fluorescent fittings – in as many words. And third, you forgot all about another definition – the one about a fluorescent fitting being further defined as 'discharge lighting equipment'.

This then takes care of 10 (4) and, come to think of it, the whole sorry saga of you wanting to be the big cheese. The chief inspector need not bother anymore. You get your butt over to the complainant, fix the earthing on the kitchen light fitting, check the rest of the electrical installation just for good measure and issue a fresh Certificate of Compliance. Lesson learnt!

We now move onto the regulation, namely Regulation 11, with which you complied to get your registration as an Installation Electrician, without perhaps even knowing that the procedure you followed is actually written up in legislation.

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.

The application form to register as Installation Electrician (a registered person) is found at the back of the Electrical Installation Regulations 2009. The registration fee, of R120, in Regulation 14 is paid to the Department of Labour. This payment can also be in the form of 'revenue stamps'. 'Revenue stamps', issued by the South African Revenue Service, were abolished during 2009, almost certainly after the publication of Regulation 14, which explains their continued reference. These days you can pay the Department via electronic funds transfer or EFT as the process is more commonly referred to.

This, ladies and gentlemen, is all we have time for this month. We'll pick up where we left off in the next riveting instalment, where we'll look a little deeper into the registration of registered persons, the withdrawal of certificates and much, much more.

Till next time ...

MAJOR TECH LAUNCHES HIGH POWER LED FLOODLIGHT SERIES

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MAJOR TECH has introduced an innovative, slimline HLF LED Floodlight Series. As the company's lighting specialist Rhodam Evans points out, LED floodlight solutions have become very popular in industrial and commercial holdings, especially where safety and security are key considerations. Commercial and industrial floodlights are designed to provide bright, uniform lighting across wide areas.

The HLF series is suitable for warehousing, agricultural holdings, parking lots, and sports grounds, bringing any exterior to life. The high quality, inexpensive, value-for-money high power floodlights have several benefits compared to halogen or standard incandescent options.

Evans explains that the HLF Series is available in 500 W (30 000 lumen), 300 W (18 000 lumen), 200 W (12 000 lumen) and 100 W (6000 lumen), and includes a new 170° rotation feature, which makes the floodlight easy to install and allows light to be aimed in any direction – it is thus no longer restricted to a wall mounting. "The premium quality aluminium body, which is highly corrosion resistant, makes it easy to maintain and clean," says Evans.

Features:

- 170° rotation
- Slimline housing with modern design



- Outstanding corrosion resistance
- SMD LED
- High quality IP65 cable connection
- 120° beam angle
- 6000 K – 6500 K cool white

Advantages of the HLF LED Floodlight Series are that it is energy efficient and inexpensive, offers value-for-money and low maintenance; is environmentally friendly, has a lifespan of 30 000 to 50 000 hours and offers uniform, bright light.

Enquiries: +27 (0)11 872 5500

THE VALUE'S IN THE PIECES OF PAPER

On December 3, 2016, a set of five light bulbs (two designed by Edison) and one socket sold at auction in Dallas for \$30 000. On its website, Heritage Auctions (the auctioneer) states the collection was used in patent infringement lawsuits filed by the Edison Electric Light Co in the late 19th century.

Contrary to popular belief, Thomas Edison did not invent the incandescent light. However, he did make various improvements to the design, which made the invention practical for commercial use, and was granted a patent for them on January 27, 1880. In the succeeding years, various companies producing and selling bulbs created under other patents began multiple lawsuits against Edison, attempting to void the inventor's patent.

In an interview with Radio-Canada, Heritage Auction's

consignment director, Don Ackerman, explained why the bulbs fetched such a high price. "The light bulbs, by themselves, if they weren't associated with the lawsuits, probably wouldn't have much value," Ackerman said, adding that the original Edison bulbs from 1880 were very rare and potentially worth \$40 000. However, the bulbs and the socket in this collection date from around the time of the trial – 1893.

"If the Edison bulb we had, just the Edison bulb by itself, didn't have the court label on it, it would probably be worth about \$500 US. That's where the value was – not so much in the light bulbs but in the little pieces of paper that were attached to them!"

<http://www.ecmag.com/section/lighting/items-related-thomas-edison-fetch-64000-plus-auction>



DECORATIVE LED LIGHTING SOLUTIONS FOR SUN CITY

Sun International's Sun City Resort is in the process of upgrading the walkway lighting in the gardens and parking areas.

BEKA's David Fitzpatrick explains that Sun City Resort, which borders the Pilanesberg Nature Reserve, consists of four hotels, a time-share option and a casino. "Owing to the size of the resort, energy saving solutions are a priority. The resort's street lighting has already been successfully upgraded to LED technology using BEKA Schröder products and the areas that came under review next were the walkways and parking area lighting," he says, adding that LED technology was the obvious choice because of its low maintenance, low energy consumption and high-performance characteristics.

BEKA Schröder's locally designed and manufactured LEDpost bollards enhance the walkways in the vicinity of the Gary Player Country Club, the Soho hotel and the Cabanas, as well as in the forest outside the elegant Cascades hotel.

The Zela LED post top luminaire replaces the old sphere lighting in the parking areas at the Cabanas Hotel, Soho Hotel and the Cascades Hotel. "The green LEDposts blend in elegantly with the surroundings, and the distinct design shields pedestrians from glare and prevents spill light from being emitted in an upward direction."

Fitzpatrick says the popular luminaire emits a pleasant glare-free light as a result of the highly

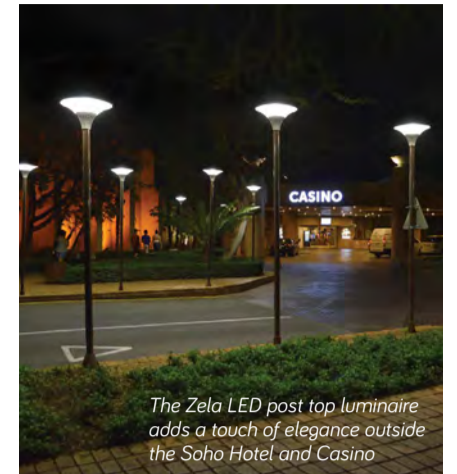
efficient white reflector. The Zela provides a cost-effective lighting solution and both the LEDpost and Zela luminaires are equipped with electronic temperature monitoring, which prevents overheating of the LEDs and power supply – positioned alongside the LEDs (ThermiX) – thereby prolonging the lifetime of the luminaires.

BEKA Schröder locally develops and manufactures LED lighting products, designed for local conditions. "We are very proud to be associated with Lasrust Enterprises and Sun City Resort, in providing a successful lighting solution for this prestigious group," says Fitzpatrick.

Enquiries: +27 (0)11 238 0020



The stylish LEDpost illuminates the walkways at Sun City Resort.



The Zela LED post top luminaire adds a touch of elegance outside the Soho Hotel and Casino.

FOOD FOR THOUGHT

It is no secret that the layout of a supermarket influences purchasing decisions. Where products are placed can (unconsciously) determine what lands in a shopping cart. André Schweinsberg, Vertical Application Manager Shop EU at LEDVANCE explains how different food products present specific lighting requirements.

The right light welcomes a customer from a distance. Light should direct and guide a shopper through a store. Schweinsberg says that perfectly staged sales areas can increase buying pleasure and sales success. Good lighting means a customer will stay in a shop longer and potentially purchase more. "Today, LEDs offer more sophisticated possibilities," he says. "These include dark and bright contrasts that create a more interesting and dynamic environment." What is crucial is that visual attention is always directed towards the goods. Vertical direct lighting from shelving, that points light exactly where it is needed, is a good option.

"LEDs can play an essential role here," says Schweinsberg. The technology is particularly advantageous for meat products, but also for other UV-sensitive products. As LEDs produce low IR and UV radiation, they can spare food and packaging materials.

Customers tend to judge the freshness and quality of the products they are buying according to their colour. "That's why lighting solutions with very good colour reproduction are needed," emphasises Schweinsberg.

Through the use of light colours specifically adapted to the product group, fresh products such as fruit, vegetables, bread, cheese and meat can be optimally presented. "Colour emphasises the quality of the products and makes them particularly attractive to customers."

As well as boosting sales, the right lighting can also save money. "After fridges and freezers, lighting is the second biggest financial outgoing for supermarkets," says Schweinsberg. "Cutting these costs means big savings. LEDs not only mean reduced energy consumption, but also fewer maintenance costs."

Schweinsberg strongly believes that lighting is one of the most important components of any store design. "Lighting should be an integral part of a shop concept, and form part of the planning right from the outset," he explains. And as possibilities increase and competitors get more creative – now is the time to add new items to your shopping cart.

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N50-LED Industrial Zone 2 Luminaire

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- 304 / 316 Stainless Steel
- IP66



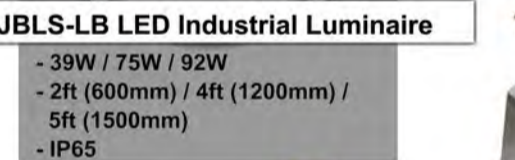
JBLT-LED Industrial Luminaire

- 9W / 18W / 24W
- 2ft (600mm) / 4ft (1200mm) / 5ft (1500mm)
- Clear / Frosted T8 LED Tubes
- IP65



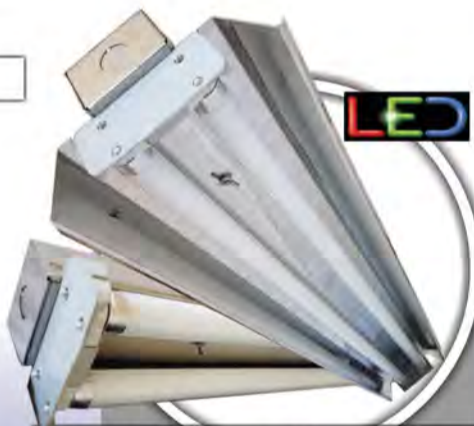
NCP-LT LED Vandal Resistant Luminaire

- 9W / 18W / 24W
- 2ft (600mm) / 4ft (1200mm) / 5ft (1500mm)
- Clear / Frosted T8 LED Tubes



JBLS-LB LED Industrial Luminaire

- 39W / 75W / 92W
- 2ft (600mm) / 4ft (1200mm) / 5ft (1500mm)
- IP65



NSC-LT LED Open Channel Luminaire

- 18W / 24W
- 4ft (600mm) / 5ft (1200mm)
- Available with Clear or Frosted T8 LED Tubes
- 304 Stainless Steel Body
- Available with or without Wings
- IP20



NGBP-LED Industrial Zone 2 Luminaire

- 30W
- LM6 High Pressure Die Cast Aluminium
- IP66



NORDLAND T8 LED Tubes

- 9W / 18W / 24W
- 2ft (600mm) / 4ft (1200mm) / 5ft (1500mm)
- Clear Glass / Frosted Glass

HEAD OFFICE:

Nordland (Pty) Ltd
70 Driefontein Road
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1739
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Email sales@nordland.co.za

WESTERN CAPE:

Matelec (Pty) Ltd
Unit 13, Magnum Park
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EASTERN CAPE:

Farad Agencies
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STILL SHINING BRIGHTLY AFTER 50 YEARS

NORDLAND LIGHTING, which this year celebrates its 50th anniversary, has launched its first die-cast aluminium bulkhead Zone 2 LED luminaires for mining, oil & gas and petrochemical applications. The industrial and hazardous lighting specialist has also made the luminaires available in stainless steel for specific requirements.

"Cost-saving and increased safety benefits have led to a move towards LED technology in industrial and hazardous lighting," says Nordland Lighting engineering manager, Eben Ferreira.

"There has been a dramatic decrease in the cost of LEDs, which means it is better to invest in the latest technology than in cold cathode fluorescent lamp (CCFL) systems, which are likely to be phased out over the next ten to 15 years," Ferreira explains.

Commenting on what gives Nordland Lighting a leading edge, sales manager Johann Lamprecht says in a highly competitive market, the company offers good, reliable products with an affordable pricing structure and looks after its customers' needs by ensuring it supplies the most suitable product for their requirements.

The manufacturer also has a dedicated lighting design team, including a qualified lighting practitioner accredited by the Illumination Engineering Society of South Africa (IESSA). This person is one of only a handful of similar experts in South Africa.

"It is important our customers realise we have this resource in-house, and understand that this means our recommendations and findings can be trusted implicitly," Lamprecht explains.

Nordland Lighting also offers an applications engineering service, with Ferreira heading up a product development team that constantly refines products and looks at innovations for the local market.

Applications engineering

Lighting design focuses on factors such as aiming and orientation angles of the product, number and type of luminaires, and illumination levels achieved within appropriate standards. "Our experience in ap-

plications engineering means we can turnaround lighting designs in a short time and with limited information," says Lamprecht.

In addition, the manufacturer works closely with the SABS to ensure all its light fittings are approved and comply with the latest specifications and regulations. "Our entire lighting range has retained its permit mark for application in potentially explosively areas since 1977, while our non-hazardous products comply with SANS/IEC 60598, in addition to carrying the Safety Mark," Ferreira says.

Explaining the distinction between industrial and hazardous lighting applications, he says the latter has distinct categories. These are mainly Zone 1 (explosion-proof areas) and Zone 2 (dust- and ignition-proof areas). Zone 1 does not necessarily mean the fitting itself is explosion-proof, but simply that it will not be a contributing factor in the event of an explosion. Nordland manufactures Zone 1 lighting for underground mining, as well as for non-hazardous areas such as cableways and walkways.

Industrial lighting encompasses warehouses and factories, and specialised applications such as floodlighting, sports lighting, road lighting, prison lighting, and stainless steel products for use in coastal areas or other corrosive environments.

Typical applications include all commodity sectors of the mining industry, from gold to platinum, coal and diamonds.

Major industrial customers include PPC, Sasol, Eskom and various South African municipalities. Products are supplied to the agricultural sector, where grain silos are also classified as hazardous areas.

Short lead times

In addition to a rapid turnaround time, Nordland Lighting offers warranties on all its products. On the high-intensity discharge (HID) lamps, it gives a standard two-year warranty. For LEDs, this warranty can be as long as ten years, depending on the product.

Local content of the company's lighting products is as high as 95%,



with specialised components such as ballasts imported from Germany, for example. Some of the LED components are sourced from China, where Nordland Lighting has a permanent representative to conduct factory visits and monitor product quality. "We are the sole distributor in Africa for various LED lighting manufacturers," Lamprecht notes.

Latest trends

The move to LED technology has meant that though Nordland Lighting will not discontinue older products, the company will focus less on the development of new products based on older fluorescent technology.

The main attraction of LED technology is that it is cost-effective. "The energy savings alone mean the replacement cost for going the LED route can be recouped in as little as five years," Ferreira says.

Some of the company's top products include the N60 (Zone 1, IP 65) luminaire range; MiniLite LED vapour-proof luminaires for underground and surface areas; and JBP luminaires for hazardous areas.

Looking to the future, Lamprecht says Nordland Lighting will continue to focus on new product development and assisting customers to implement the best solutions for their specialised requirements.

Enquiries: +27 (0) 11 662-4300

ENERGY EFFICIENT LIGHTING SOLUTION COMPLEMENTS INTERNATIONAL BRAND

Busby is a leading wholesale and retail fashion group in South Africa. Busby Retail distributes extensive ranges of clothing, luggage, handbags, accessories, eyewear and footwear, all bearing international brand names, house brand names and private labels. The company is innovative and dynamic which led it to approach Solid State Lighting International (Pty) Ltd to provide guidance on an energy efficient LED lighting solution that would complement the Guess brand, store location (Sandton City) and customer profile while maintaining the quality and efficacy of lighting standards set by the brand internationally.

Customer challenge

Traditionally, Guess stores were designed using 70 W and 35 W Metal Halide lamps to provide high levels of illumination and a high colour rendering index with emphasis on illuminating the products on display. However, owing to stringent changes

to the landlord's store design requirements, aimed at energy efficiencies required for new and retrofit stores, tenants were required to reduce their specific connected energy loads, in particular the lighting solutions used. To prevent this from resulting in a reduction in store light levels, a solution was required that would complement the retail brand while falling within the landlord's shop fit-out specifications, which restricted the specific connected load of the store design to <math><34 \text{ W/m}^2</math>.

The right lighting

Based on the existing store layout, the SSLI design team used Dialux to model Philips LED StyliD lamps using various combinations of beam angle, CCT and efficacy levels until the right lux levels were met and in some cases exceeded.

The Philips StyliD is a breakthrough LED concept combining design, the latest and most innovative LED technology and optical

systems, and reliable heat management. StyliD offers substantial energy saving compared to halogen, quality light, complete stylistic freedom, and significant maintenance savings. A mix of narrow and wide beam angles and a mix of 3000 K and 4000 K CCT ensured SSLI achieved the highest CRI possible. Using the StyliD Compact Track Light provided a solution that fell within the landlord's shop fit-out specifications and significantly lowered the energy consumption and the specific connected load of the store design to <math><20 \text{ W/m}^2</math>.



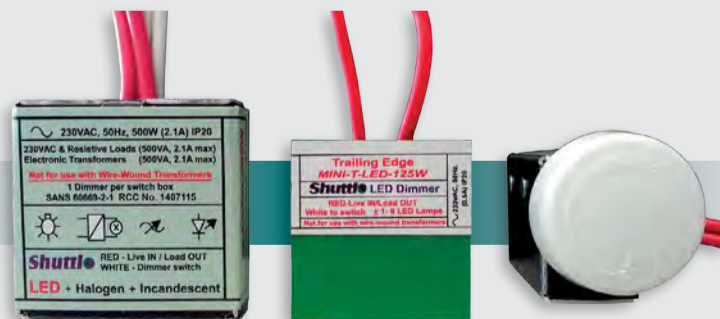
An energy efficient LED solution that fits the brand aesthetically, looks modern, is low in maintenance, and reduces the in-store heat load while complementing the strict international lighting and store design levels required by the retail brand.

Shuttle

Dimmers for LED + Halogen + Incandescent

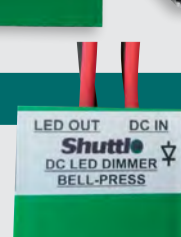
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YSALIS SWITCHES AND SOCKETS LAUNCHED IN SA

LEGRAND'S YSALIS switches and sockets have been launched in South Africa. The company's strategy to introduce a chic range of wiring devices to economy and standard market segments, meets local demand for sophisticated, yet affordable fittings with safe and reliable control features.

"The stylish Ysalis range has a contemporary design that enriches the décor of any home or office and provides easy and convenient control of lighting, air-conditioning and the television," says Sonja Leibbrandt, marketing and pricing manager, Legrand SA, part of the global Legrand Group. "Slim, curvy shaped plates, available in white and champagne, can be fitted with fluorescent indicators on the switches for improved comfort and safety in the dark.

"An important feature for the local market is that Ysalis sockets accommodate current and new South African standards for universal dimmer switches and data and USB sockets, as well as TV sockets for audio and video connections. The switches and sockets are fully compatible with Legrand trunking systems.

"It is impressive that the modular design allows any configuration to be adapted to suit present and future needs. With this system, it's not necessary to damage the wall to increase, remove or change the number of lighting points or connections – the same box and support frames are used to accom-

modate all modifications," says Leibbrandt.

The compact design of these mechanisms provides more space in the back box for easy wiring and, for enhanced safety, a spacer separates high and data currents. Various modules are available – from one to three modules, up to six modules – with double or triple pole switches. Universal dimmers are designed for new and existing installations, to dim incandescent and halogen loads, as well as compact fluorescent lamps and LEDs. For easy installation, data sockets are fitted with tool-less connectors, eliminating the need for punch down tools.

Enquiries: +27 (0)11 444 7971



NEW POSSIBILITIES WITH INNOVATIVE RANGE OF LED LAMPS

MAJOR TECH'S innovative range of LED lighting brings consumers a world of bright new possibilities and cost-effective solutions. "The future of home lighting is the LED way," says sales manager Werner Grobbelaar. He adds that the uptake of LEDs was slow initially because of a lack of information and because homeowners perceived LEDs as being expensive.

"It's understandable that consumers have to watch their spending and while many go for the cheapest option, this can end up being penny-wise and pound foolish. Although LEDs are more expensive, they last a long time and are energy efficient – so, in the end, are more cost effective.

Grobbelaar says over the past few years, as the technology has evolved and improved, the price of LEDs has slowly dropped and is steadily becoming more affordable. "When choosing lighting, consumers must take into consideration that while LEDs may not present a cost-saving exercise initially, they certainly pay off in the long run," he says, adding that LEDs are a long term investment in a home, and are kind to the environment as they are energy-efficient and do not contain mercury or poisonous substances.

For smart homeowners and buyers and developers who want to be financially prudent while helping to keep the environment clean and green, the choice is clear.

"Major Tech offers a wide variety of home and industrial products so improving your lighting can be effortless."

Grobbelaar says it is easy to replace lamps with LEDs. "Major Tech produces a range of retrofit lamps that will fit right into existing lamp sockets so you can begin to save money immediately. In most cases you can retrofit a like-for-like LED lamp with the same base fitting and with a similar shape and light output – but with long life and reduced maintenance.

Features include:

- Low power consumption and a long life of around 25 000 hours.
- 360° light beam angle for all over illumination.
- Money saving – reduces labour and maintenance costs.
- Easy to install.
- Available in warm white 3 000 K and cool white 6 000 K.

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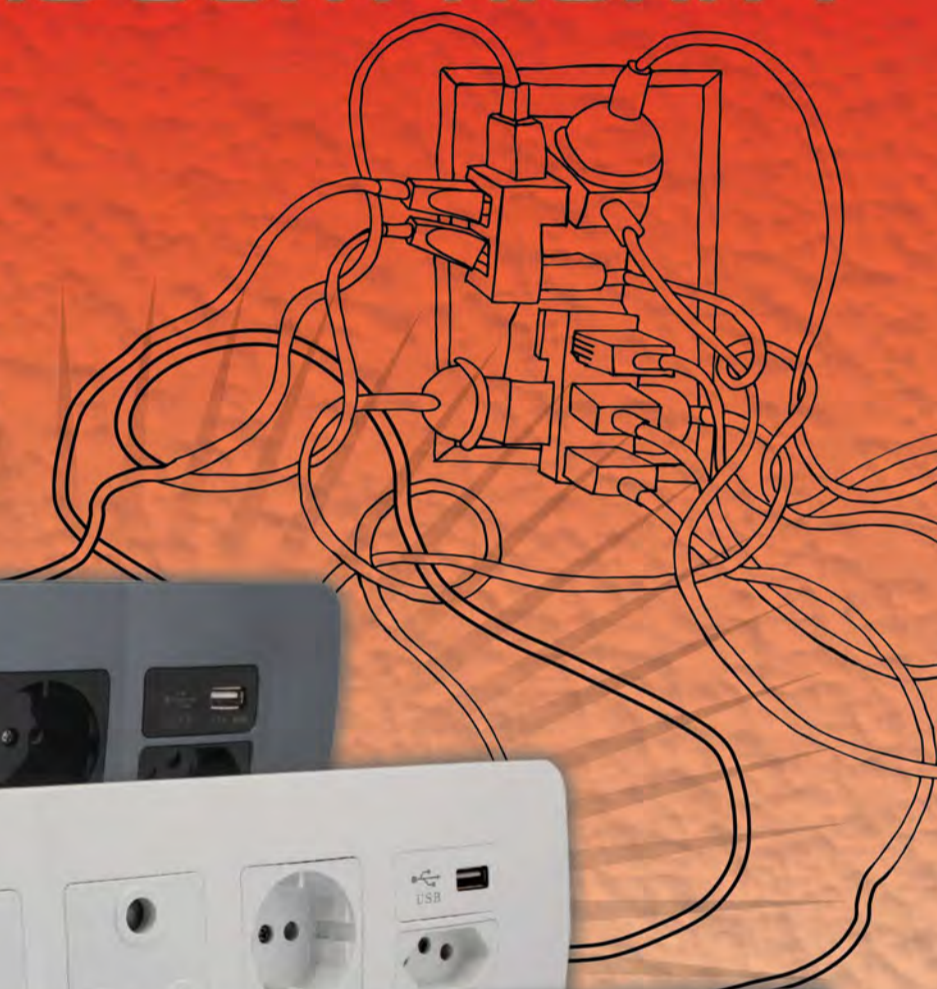
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YOUR SAFETY IS OUR PRIORITY



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 Omni Cluster 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

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FEBRUARY SOLUTION

THE GREEDY BOOKWORM

This picture shows how the three volumes looked as they were placed on the shelf.



The arrows point to the front of Volume I and the back of Volume III. The bookworm only ate a distance of $1\text{ cm} + 7\text{ cm} + 1\text{ cm} = 9$

APRIL FEATURES

- MCCs and motor protection
- Cables and cable accessories
- Lighting

Buyers' guide

Motors and drives

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Editor:

Karen Grant

Advertising:

Carin Hannay

Design:

Anoonashe Shumba

Consultant:

Ian Jandrell PrEng,
BSc(Eng), GDE, PhD, FSAIEE, MIEEE

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Karen Grant

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