

## RESILIENT ELECTRICAL INDUSTRY RISES TO THE CHALLENGES



Much has been written and said about the extraordinary year which has just drawn to a close. The world collectively faced a new set of unprecedented challenges, and at times it felt as if we were teetering on the edge of disaster. There were numerous casualties – personally and in business – and the hard times are not forecast to ease anytime soon.

The South African electrical industry, however, has shown resilience through the past 12 months, and there are silver linings which can be made out through the doom and gloom if you look hard enough.

Wimpe Ludwick, GM of lighting company **BEKA Schröder**, says that being part of the industry has always been a privilege. "Lighting is seen as a niche market within the greater engineering field and to be more specific, the electrical engineering field. Our involvement within the mentioned sector of the industry is therefore dependent on the total state of the economies and activities of South Africa and Sub Saharan Africa."

"Being a local manufacturer with innovation, design, manufacture, marketing, distribution and support, we are faced with our own challenges. We are all aware that the economy is under pressure but many other factors such as costs, efficiency and the exchange rates have a major impact on a manufacturer in Africa. Local manufacturers constantly compete with imported products while supporting local employment and B-BBEE initiatives. We therefore aim to always provide products designed to the highest standards, suitable for our harsh climatic conditions without compromising quality. Customers have the peace of mind that a local company will support and guarantee their products for many years with the backup and support required."

"The last two years have realised a negative trend within our sector to initiate and implement new projects. It has unfortunately been challenging and many leaders of organisations have needed to think out of the box to drive growth, or even survive, in these economic conditions.

"2020 did not start on a high and everything cannot be blamed

on COVID-19. If you were under pressure before the pandemic, things would have certainly gone downwards from March.

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CONTINUED FROM PAGE 1

## Resilient electrical industry rises to the challenges

"I feel this is a survival year for many lighting companies, but it is also a year where we could press the reset button and re-evaluate our position. During a time like this it is important to focus, invest and continue making strategic decisions and plans to implement in the coming two to three years. Our people are our biggest asset, so their well-being is of the greatest importance. Any salary cuts or retrenchments should be avoided and only seen as a last resort. We were and remain very fortunate to be able to support our staff fully without any people losing their jobs."

"2021 is expected to be a recovery year with a slow start in the first half. The way you prepare your company and your people for the future will make all the difference. Yes, savings plans and cash management is of the utmost importance, but it remains essential to maintain a growth orientation and take the time to continue implementing strategies and innovation of new products, in order to still offer the latest technologies at market related prices during uncertain times into the future. We will, however, be out there leading the way and trying our best."

The message from **Crabtree Electrical** – a local manufacturer of quality products for the installers and users of low voltage electrical infrastructure – is short and sweet. The company is prepared and ready for 2021 with both the Lesotho and Wadeville manufacturing facilities 100% up and running. "We will be here for the consumer with quality local products as well as our export range."

The **Eurolux Group** is optimistic for the future: "The Eurolux Group would like to take this opportunity of wishing our customers a new year of good health, prosperity and new opportunities."

"After facing some initial challenges with the Eurolux Johannesburg branch move across to the Radiant Lighting premises in Wynberg, Sandton, we are pleased to confirm that our respective warehouses are now fully operational and back to our normal standard of service levels. We would like to express our sincerest appreciation to our customers for their patience and understanding during this transition period."

"2021 will see the launch of exciting new concept showrooms, in Johannesburg and Umhlanga respectively, exhibiting an inspiring combination of Eurolux, Radiant and Euro Nouveau products. With literally thousands of light fixtures on display across four different levels and a combined floor area of over 3000m<sup>2</sup>, our Johannesburg branch will boast one of the largest and most modern lighting showrooms on the African continent."

"Starting on the top (third) floor, our comprehensive outdoor and solar offerings are complimented by our leading outdoor brands such as Fumagalli, SG and Lutech. The next level down presents an exhilarating new crystal display room, starting off with a walk through a 'crystal forest of modern fixtures', complimented by our extensive traditional crystal offering. This floor also houses our new Eglo concept display room, highlighting the best of contemporary European designs."

"Our mezzanine level below is a combination of modern and traditional glass pendants, traditional wrought iron and metal chandeliers, table and floor lamps. Moving on to the first floor, showcasing the kitchen and bathroom lifestyle displays, a kaleidoscope of colour will embrace you as we display our latest new product releases. A stunning project concept area completes what is certainly proving to be the most popular level of the showroom."

"With a new coffee bar and stunning Euro Nouveau displays, our revamped Reception area on the ground floor is the perfect introduction to a unique and exciting showroom experience."

"Our recently opened Umhlanga showroom, situated in Talksure House on Umhlanga Ridge Boulevard, offers the KZN market a 600m<sup>2</sup> enlightenment of both modern and classic light fixtures. Including an exciting array of Euro Nouveau favourites such as Slamp, Fontana Arte, Panzeri and Bomma, this showroom has been designed to both support and inspire our KZN customers. All three of our showrooms are open from 8am to 5pm, Monday to Friday, and from 9am to 1pm on Saturdays."

Another proudly South African company, **Pratley**, aims to launch unique electrical termination products in 2021. Established in 1948 by George 'Monty' Pratley, the various companies in the Pratley stable rest on a foundation of research and innovation in both the manufacturing and mining sectors. The various Pratley companies, drawing from 70 years of experience, have filed over 350 patents worldwide, and are ISO 9001 certified.

The company aims to launch at least three unique electrical termination products in 2021 aimed specifically at the offshore, oil and gas, industrial and shipping industries, all of which present particularly arduous and hazardous operating environments.

The offshore market represents some of the most challenging conditions that can be encountered, with extreme cold and air saturated with corrosive salt. Currently, most equipment used in this sector is manufactured from specialised materials. "We have improved solutions for these problems that will result in unique products," reveals Sven Breed, who heads up the electrical R&D division at Pratley.

"It is a really exciting time for us," comments Sven. Early 2021

saw Pratley launch its world-first Ex d/e corrosion-resistant Enviro compression cable gland. "We have had a lot of international enquiries and are currently certifying this product for use in the US and the European Union. Indeed, the feedback we have received has resulted in the latest developments we are bringing to the market to supplement our range."

Pratley operates two test and research laboratories at its Krugersdorp manufacturing facility, which places it in the top league of electrical-equipment manufacturers globally. The fully equipped laboratories are staffed by world-class scientists and technicians such as Sven, who is regarded as a global expert in the science and standards of electrical equipment for hazardous areas.

The electrical testing laboratory has the distinction of having more state-of-the-art equipment than the SABS itself, even to the extent that other accredited laboratories approach the company to make use of its advanced equipment. Here, Sven oversees product development and research, including the complete product lifecycle, with his department designing all the necessary tooling and machinery for production.

"We have a new ultra-low temperature deep freeze and are looking to expand this service going forward as it is so specialised. By being able to test to minus 86°C means we can guarantee that a product can operate in practically any environment on Earth. We have also acquired a few additional smaller machines and recently upgraded our tensometer. We are looking at procuring much more equipment in early 2021," reveals Sven.

Nelo Neves, MD of **Ledvance** notes that the company is, "Exceptionally excited for 2021 due to the fact that we have recently finalised an alignment between our Africa, Middle East and European markets in respect to our product segmentation. As such we will no longer have the different product lines where Europe gets the best and Africa is lagging at the bottom."

"We are launching the full array of our smart portfolio, this will include the Smart Bulkhead, Smart GU10, Smart Flex, Smart Bulb and finally our smart Panel, these will be launched throughout the year culminating with the panel in Q3."

"We are betting heavily on our service offering, standing by our clients to ensure that every project, every installation is delivered on time and backed by our quality seal of approval."

"Personally, as MD of Ledvance, I am very excited to hand over the reins here in SA to the new captain as I head off to take over the Ledvance UK office. We have had a great 2020 considering all the challenges and we are in a great position to attack this market in the new and pandemic free 2021. May you all have a great year."

Eli Kalmi, CEO of **K. Light** says that, "We at K. Light have found our planning for 2021 rather difficult and challenging due to the travel restrictions and many of the international lighting shows being cancelled as a result of COVID-19. The lighting factories overseas are not designing and producing many new items as there is not a large demand at the moment. I feel LED technology will remain very dominant but with not too many new designs or ideas. Without vaccines for the virus, business will remain very challenging."

"Thank you to everyone for your ongoing support, says Simi Ebrahim from **PioLED Lighting**. "We will continue to bring you the very best in LED lighting innovations in this new year. For 2021, we are very excited to launch our new smart lighting range named QuRi. You can now enjoy great lighting, controllable via the Smart Life/Tuya app or through remote control. We currently have three products in this range and hope to grow QuRi with many more fantastic smart lighting products in the near future. We wish you all the best and have a fantastic year ahead."

Still in the lighting field, Marc Machtelinkx of **European Light & Design Centre** says that all industries, including lighting industry, went through a rough 2020. "We have seen steady recovery of the building industry and we expect the same of the lighting industry. We have also noticed that because of lockdown and the travel ban, people are investing more in the upgrade of their homes and (local) holiday homes, which has benefitted us."

"All the lighting fairs were cancelled this year because of COVID-19, so it is difficult to predict what the design trends will be, but our suppliers, who are all market leaders in their field, have shown us that there will be more use of colours in the designs, not only the black and white brass, but we have seen the use of bright greens and orange."

"LED technology has taken a big step forward. The quality of COB LED has improved and is used in most of our imports, and not only in downlights or spotlights but also in decorative fittings."

While a number of other companies in the electrical trade were approached for comment, many had to decline due to time constraints – they were simply too busy to respond. That is a positive. The annual end of year shutdown, coupled with the effects of a National State of Emergency which has lasted since March 2020, could have seen many businesses going through the motions as one year ended and another dawned, however, this wasn't the case. The silver linings are there.

## Growing product offering as Swan Electric and Switch Technique KZN unite

**Switch Technique KZN** has recently turned 21 and the company continues to grow. "We feel that we have reached a great level of maturity and respect in the electrical and allied markets," says Stevan Elion, who started Switch Technique KZN in 1999. "We offer a wide range of products and take pride in our slogan, 'The Team to Rely On' and we continue to give our customers great service and technical support."

Elion has been active in electrical sales since the mid-1980s, having worked at companies such as Sprecher & Schuh, York Enclosures and ABB. Switch Technique KZN was started as a small agency business, distributing electrical products to electrical wholesalers, panel builders and OEM companies. Due to demand, the company began manufacturing fibreglass electrical enclosures and, in 2018, was successful in its SABS application and was awarded a permit for SANS141:2006 which is required in order for municipalities and Eskom to accept the fibreglass enclosures.

In February 2020, majority shares of Switch Technique KZN were obtained by Swan Electric which is a subsidiary of Mobicon, a Hong Kong listed company. Elion will continue to run the Switch Technique operation and assist in growing the Swan brand in South Africa. Other South African subsidiary companies include Mantech Electronics and Illumine Electrical. The Swan, Mantech and Switch alliance gives the company access to over 130 000 products to offer to customers, with this number continually growing.

The Swan brand has been supplying electrical products for over 22 years and includes ranges such as circuit breakers, earth leakages, contactors/overloads, pushbuttons/pilot lights, relays, micro/limit switches, enclosures, distribution boards, manual and automatic (ats) switches, industrial and domestic switches and sockets as well as hundreds of other products.

2021 is going to be a busy year with the launch of a new range of MCBs, MCCBs, ACBs and a dc rated range of products for PV industries. The company is currently hard at work with IEC test reports and with the NRCS in obtaining its RCC and LOA certificates.

Switch Technique KZN will be showcasing its products at the 2021 Kwa-Zulu-Natal Industrial Trade Show (KITE) and at other marketing events as allowed within COVID parameters. Visit the website for product and marketing news.

Enquiries: [www.switchtechniquekzn.co.za](http://www.switchtechniquekzn.co.za), [www.mantech.co.za](http://www.mantech.co.za), [www.swan-electrical.co.za](http://www.swan-electrical.co.za)



Stevan Elion

## Mitsubishi Electric's new ACB reduces installation and maintenance stress

Targeted at commercial facilities, factories and other buildings, Mitsubishi Electric launches its new air circuit breakers (ACBs) with a breaking capacity of up to 50kA. The new range, called AE V Series C-class, offers a number of built-in features that reduce the need for multiple additional accessories. For example, when utilising the built-in solenoid for remote operation the traditional motor charging devices and closing coils can be dispensed with as the breaker only requires an appropriately matched shunt trip device. This helps to eliminate additional parts that were previously required to achieve remote operation. The new AE V Series C-class ACB from Mitsubishi Electric (Drawout type: left, Fixed type: right)

### User friendly breaker design reduces panel maintenance stress

Installation, use and maintenance represent the whole life cycle of an air circuit breaker. At each stage the AE V Series C-class breakers have been designed to bring additional benefits to users. At installation the universal terminals make wiring easier and more flexible, which in turn reduces unnecessary time wastage and streamlines stock holding.

The overall unit design consolidates many points within the main breaker frame, reducing the number of required external devices. When options are required such as a shunt trip device or an under voltage trip device they can be quickly fitted into slots accessible by panel builders from the front of the breaker, making the panel quick to construct but also aiding maintenance as the accessories can be checked simply by removing the front cover.





## Christmas and electricity

I cannot apologise for using the term 'Christmas' in this column although I know that many readers are of other faiths and not Christian. But I am sure we all get the point. I cannot write "Holiday time and Electricity" because it would hardly make any sense. So, as we were approaching the Festive Season as I wrote this, here are a few fun things about Christmas and electricity.

Christmas tree balls were originally made in Japan and German by skilled glass blowers. Being war time, it would have been a poor idea to hang the enemy's ornaments on your Christmas tree, so Corning Glass of the USA began producing glass Christmas balls using machines designed to produce light bulbs. Light bulbs were in over supply due to the requirements for replacement bulbs falling off due to the blackouts at night. Corning could produce more balls in a minute than a glass blower could make in a day.

Moving on to power consumed by Christmas lights... I am not sure of the figures for RSA but a display of, say 500 W total light consumption, will use 3 kWh in a six-hour period which is about one third of normal domestic consumption. Or it was. With LED lights you could light up the sky with very little

consumption. The first Christmas lights were made in 1882 (yes, all that time ago, 138 years). The person responsible was Edward Johnson, vice president of the Edison Electric Light Company. His 'publicity stunt' lasts in the form of Christmas lights to this day.

LED light can now illuminate a Christmas tree using 75% less electricity (say 30 watts vs 120 watts) and they do not get hot – this makes it very unlikely that you will burn down your Christmas tree. And you can use hundreds of them if you wish.

In the UK in 1973 there was a shortage of electricity due to strikes by coal miners over wages. As a result, the UK government announced a three-day working week, beginning the week after Christmas. In some areas, large lighting displays had been switched off for the Christmas period. Television broadcasts had been stopped beyond 10:30 pm each night but this was not enforced over Christmas.

An interesting fact is that with LED lights being so efficient, it is possible to power Christmas lights using some aluminium foil, salt water and a few steel nails. What is probably not known is that (according to wonderpolis.org),

Enoshima Aquarium in Japan shocked the world when its main Christmas tree's lights were entirely powered by an electric eel from the Amazon and Orinoco rivers. Each time it moves, it can produce up to 800 W of electricity. They connected the tree to two aluminium panels inside the fish tank to act as electrodes. One has to wonder how this system is maintained... You can hardly 'open, isolate and earth' the electric eel. I mean, the eel produces 400 V dc pulses at some 800 W. You can hardly scoop it out of the tank and I, for one, would not scoop it out with a wooden handled net. On this topic, this is a very interesting concept – if we reflect that a television uses about 70 W and a cell charger, fridge and a few lamps certainly not more than 800 W, you could power a small home just with an electric eel. I'm not queuing up to be the first to try it though.

And now my electrical friends out there, some thoughts. Thank you for reading Sparks Electrical News. Thank you for reading this column. Thank you to those far away (some in Namibia and Mali) who wrote in to correct me. And finally, a really good piece of advice: you will probably, over the Festive Season, have received a call from a distant acquaintance who would have asked you over for a drink. Unusual but, well so what. You arrived. You would have been offered some dry chips and a glass of warm red wine out of a box. And then they would have asked you, being electrical, to fix the Christmas lights. Be warned. Do not accept out of the blue invitations.

## Improving electricity penetration in Africa

Data from the World Bank has shown that with approximately 57% of the Southern African regional population live in rural areas. Less than 5% of this population has access to electricity. It is the lack of electricity that has been noted by the United Nations as one of the major reasons holding back socio-economic development in countries.

According to a report by Sustainable Energy for All (SE4All), closing the energy access gap will require scaling up annual global energy investment from about \$400 billion at present, to \$1.25 trillion.

This is a sentiment and ideal shared by Joshua Low, Managing Director at Messe Frankfurt South Africa – organisers of Solar Power Africa – the leading solar power and energy storage conference and exhibition. "In order to achieve the goal of providing greater access to electricity on the African continent, it is essential that a unified approach across the renewable energy market takes place."

Low says that central to this is the support and policy development that will help to unlock new avenues for renewable energy penetration. He explains that currently only 5% of all electricity is sourced from renewable energy projects. "We are seeing a commitment for governments to change this. The South African government has shown this by ensuring that its Integrated

Resource Plan – set out in 2010 – mirrors that of the International Renewable Energy Agency's (IRENA) Global Renewable Energy Roadmap of achieving 30% of global energy from renewable sources by 2030."

Stanley Semelane, Senior Researcher at the Council for Scientific and Industrial Research (CSIR), speaks about the global energy transition taking place in a panel discussion included on the Solar Power Africa platform. In his presentation, he highlights that two of the main drivers for this is understanding that natural resources are finite, and the importance of capping CO2 emissions.

Semelane says that South Africa's National Development Plan recognises the need for reliable and efficient energy that allows for greater access to electricity, while ensuring environmental sustainability and the mitigation of climate change.

To achieve these objectives, a reduction in the price of renewable energy is necessary. At the recent event hosted as part of Solar Power Africa, Frederic Verdol, Senior Power Engineer at the World Bank, noted that the costs for solar energy have reduced by approximately 70% – a cost that is expected to continue to decrease over the next five to 10 years.

The knock-on effect from this is that renewable energy will help to improve grid reliability, and the massive injection of investment in the sector will

also work to create jobs and provide greater access to energy.

Realising the importance of continuing the debate around finding renewable energy solutions to meet the electricity demands of Africa, Messe Frankfurt South Africa presents Solar Power Africa as a virtual platform run in partnership with the South African Photovoltaic Industry Association (SAPVIA) which seeks to connect industry professionals and decision-makers.

The live event hosted at the end of November saw more than 1120 attendees, from 47 countries take part in the discussions focused on solving some of Africa's biggest energy challenges. The Solar Power Africa virtual platform is accessible for a 12-month period and includes an online directory of suppliers and service providers to the industry with added functionality including: AI matchmaking, built-in videoconferencing, live streaming of content for product launches, demos and a host of other benefits.

The first live conference and exhibition is now scheduled to take place from the 13-15 October 2021, at the Cape Town International Convention Centre. This event is run in partnership with Solar Power International (the largest Solar Power show in North America) and SNEC (the largest show in the world).

Enquiries: [www.solarpowerexpo.co.za](http://www.solarpowerexpo.co.za)

Also owing to the solenoid, maintenance processes can be reduced by 30% over existing models, helping to reduce both the maintenance time and time the breaker is offline. The new design also includes a built-in drawout handle on the front, making maintenance work easier.

Furthermore, as the C-class can be "charged" electronically via the solenoid the charging power can be reduced by 88% compared to spring-charge type ACBs using motor charging devices and closing coils. In addition, charging noise can also be kept extremely low, again, providing increased benefit in maintenance.

As already noted, the optimal design removes unnecessary accessories, reducing the number of potential failure points which, during the use life of the breaker, contributes to greater breaker durability:

- Universal terminals provide flexibility of wiring arrangements by panel builders.
- Quick fitting and easy access to accessories facilitates installation and maintenance.
- User friendly breaker design reduces panel maintenance stress
- Built-in handle for drawout types.

### ACBs that do the job today and into the future.

With over 86 years of breaker design, manufacture and test, quality is a very important criteria for Mitsubishi Electric's air circuit breakers, and the AE V Series C-class is no exception; from operational design through to maintenance considerations and final standards compliance meticulous attention is applied to all aspects. The company's commitment to quality is embodied in its tough testing regime, from initial design tests to verify the design performance to its on-going quality and functional test-all policies for every circuit breaker it makes. With sales in over 100 countries, high quality products are universally required.

Going forward, additional high-end models in the AE V series will be released in the future. They bring the promise of network connectivity supporting users as they integrate power management into their Smart

Factories and Digital Manufacturing processes. Furthermore, IoT functions and the possibility to consider new ways of access, including wireless monitoring by the users' smart devices such as tablets and smartphones are also being planned. About Mitsubishi Electric Corporation.

Enquiries: [www.mitsubishielectric.com](http://www.mitsubishielectric.com)



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## SAICE: Mindset shift crucial in the transition to a green economy

The tenth annual Sustainability Week Summit took place virtually from 1-3 December, 2020, with the theme, Green Economy drives sustainable growth in SA and Africa! A line-up of prominent presenters saw engaging discussion around the environmental concerns facing our country and our planet, especially in the face of a global pandemic which has been detrimental to the health of people.

A highlight of day one of the summit was an engaging panel discussion on the various ways to go about implementing a low-carbon growth path, chaired by Thabang Mashigo, political speech writer, entrepreneur and business strategist. The South African Institution of Civil Engineering, in their commitment to sustainable growth, proudly partnered with the Sustainability Summit and was represented on the panel by SAICE Young Engineer of the Year 2019, Jeshika Ramchund.

With South Africa's position as a developing country, panellists agreed that this provides opportunities for making smart, sustainable decisions now, which will be paid off later. A prominent theme from the panel discussion was the role of sustainable and carbon-conscious infrastructure, where new building technologies can play a prominent part in reducing South Africa's carbon footprint. "As South Africa looks to infrastructure development for economic recovery, we have the opportunity

to leapfrog into sustainable development by assessing how we design, build and operate new infrastructure," said Ramchund who, in addition to her SAICE involvement, is lead engineer for Development at Bosch Projects. "However, for this to be achieved, we need a fundamental psychological shift in how we think about infrastructure, and how we cater for the needs of our society." She said that creating an enabling environment will be key, as well as a conducive procurement system where decisions are made not just on lowest cost, but on environmental consciousness too. "Civil engineers act as custodians of this initiative and have the responsibility to educate other professionals, building owners and end-users, so that there is a holistic approach to reducing our carbon contribution."

Ramchund was joined on the panel by Frans Dekker, managing director for the South African Institute of Architectural Technologists (SAIAT), who agreed that a mindset shift is required. "As a country, we have great policies, standards and regulations regarding the minimum requirements and environmental concerns of our buildings. However, in many cases – especially in rural areas – local authorities either ignore these policies, or are completely ignorant of them. In addition, the local built environment industry seems to be apprehensive of modern, environmentally-conscious construction meth-

ods, viewing these practices as a hassle or a burden, and not as a way to improve their processes."

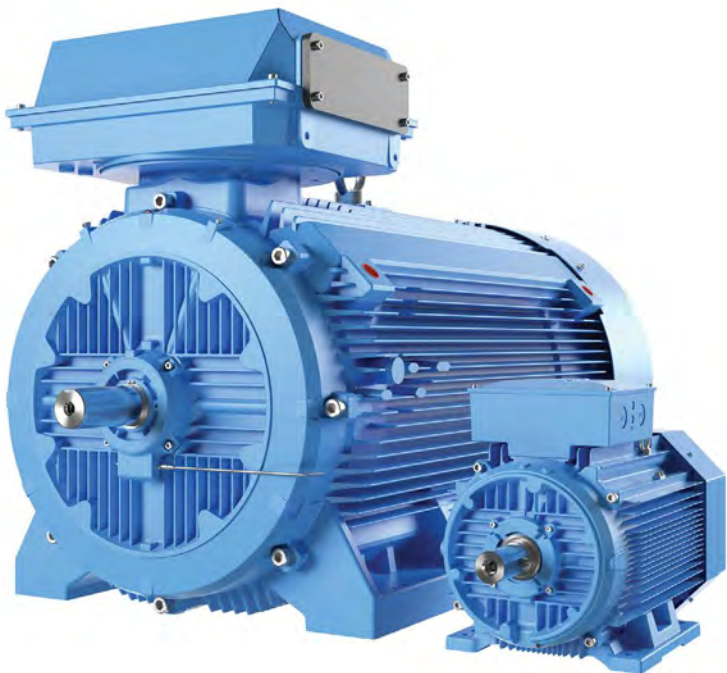
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Jeshika Ramchund, SAICE Young Engineer of the Year 2019.



## ABB and BI extend partnership to include high-efficiency IE3 motors



Low-voltage IE3 motors from ABB Africa will now be distributed by Bearings International (BI). This is an extension of the existing partnership between the two companies, with BI already a distributor of ABB Dodge gearboxes. BI has been a Mechanical Power Transmission (MPT) partner for ABB since 2011.

BI is a channel partner under the ABB Value Provider Programme for distributors, explains Michael Wächter, ABB Motion Communications Lead for Southern Africa. The comprehensive programme includes marketing support and training. The MPT partnership has evolved to encompass high-efficiency motors from ABB, with the potential for supplementary products in future. This means BI can supply Dodge gearboxes in conjunction with ABB motors.

As a distributor of globally recognised brands, BI has been supplying an IE1 electric motor for the last 15 years, notes Offer Marketing Manager Victor Strobel. It identified a need for high-efficiency IE2 and IE3 electric motors, which are often specified by the mining industry. ABB was a natural fit, given that it already has a close working relationship with BI.

The advantages of the partnership with ABB include dealing with a local supplier ver-

sus direct imports and the availability of quick technical back-up and support. BI has extended its motor range in size, with a 400 V and 525 V offering, allowing it to be able to supply projects in the mining industry.

ABB, in turn, will be able to leverage from BI's extensive 42-branch network across South Africa, covering all the major mining and industrial areas where BI has a major footprint, explains ABB Divisional Channel Manager Nevin Turner. The availability of IE3 high-efficiency motors from ABB will be especially welcomed by these sectors, where cost-effectiveness and total cost of ownership are key in an increasingly difficult trading environment.

Looking to the future, BI will train several electric motor champions to cover each of the main mining and industrial areas where it has a presence to reassure customers that any technical support is readily available, in addition to back-up advice or expertise.

BI will hold stock of the ABB motors to meet the specific requirements of its branch network. First-level customer support will be provided by BI's own sales team and product managers, while second-level support for technical issues will be provided by ABB itself.

Enquiries: [newabb.com/africa](http://newabb.com/africa)

## Cape Town powers up its own future with increased uptake from IPPs



Cape Town is set to take advantage of the recent Department of Energy's decision to allow major cities to purchase electricity directly from Independent Power Producers (IPPs). The decision is anticipated to be a major fillip for the renewable energy and IPP sector. "A lot of hard work still lies ahead to implement this policy, but it is a major step in securing a better energy future for the city," comments Barto van der Merwe, Buildings Director at AECOM.

Although Cape Town only plans to procure 300 mW of renewable energy in three to five years' time, the implications of the announcement will immediately have a major positive impact on its economy. IPPs can also take encouragement from the city's compiling of a mini Integrated Resource Plan (IRP) as recently announced, indicating that a longer-term plan for greater self-reliance is on the cards, notes van der Merwe.

Independent energy sources contribute to decreased load shedding and increased energy security. "This is an important consideration for AECOM's international clients when it comes to investment decisions. As such, companies need to carefully weigh up their options," notes Werner Schneeberger, Executive at AECOM. He points to the fact that Cape Town's Steenbras pumped storage scheme, combined with rooftop solar plants, already play a significant role in reducing the severity of load shedding in the city.

"Areas supplied by the city in this fashion are likely to become business hubs. Another factor to take into consideration is that Eskom tariffs have tripled over the last decade, with future price uncertainty a potential deterrent to investment. Power purchased from IPPs automatically comes with price certainty, while wind and solar power is already cheaper than the cost of Eskom electricity," elaborates Schneeberger.

"Cape Town will increasingly be able to shape the power

curve by setting tariffs for both producers and users," argues Brian Homann, Renewables Lead at AECOM. He highlights the example that power could be more expensive when production is low and usage is high, such as during the evening peak. It could be cheaper when production is high and usage is low, such as over a sunny weekend when factories are closed but solar power can still be generated. "Such a scenario is dependent on future pricing structure decisions. This will drive investment in smart grid control solutions and storage, and gas peaking plants, as well as allowing more renewables in the energy mix," reveals Homan.

Businesses also need clean energy to meet their sustainability targets in terms of greenhouse gas (GHG) emissions, adds van der Merwe. "As Cape Town's electricity grid becomes cleaner and increasingly powered by wind and solar energy, forward-looking businesses will want to be supplied by the city." This is because transport is a major GHG contributor, with companies increasingly opting for electric vehicles (EVs). A cleaner grid will increase the uptake of EVs in Cape Town, leading to reduced emissions, a cleaner and healthier city and ultimately, a more attractive place for business, he points out.

"Furthermore, any reduction of energy demand on the national grid on the part of major cities theoretically has the potential for Eskom to focus on economic development or rekindling the country's industrial capacity, thus stimulating much-needed growth. AECOM is pleased to see that Cape Town is taking a lead in actively implementing its energy and sustainability strategies. We welcome and support this positive development of greater self-sufficiency in terms of energy supply," concludes van der Merwe.

Enquiries: [www.aecom.com](http://www.aecom.com)





## Innovation in electricity sub-metering

As an electrical contractor, how would you define innovation in the prepaid sub-metering market? Would it be the sub-meters themselves? Would it be the services provided around the sub-meters? The answer is – yes. Innovation is more than just technology or advanced prepaid sub-metering solutions, it is communication, systems, support and agility. It is the ability to adapt to changing market needs and create solutions and systems that support electrical contractors in their businesses, and in managing changing customer requirements.

"To create the most compelling prepaid sub-metering vending solution on the market today, a company has to do more than just provide some kit, some instructions and a half-baked call centre," says Carel Scheepers, General Manager: Sales at Citiq Prepaid. "There has to be value added in terms of services, innovations delivered in terms of capability, and support provided across multiple platforms."

Let's face it, one thing that everybody wants – whether electrical contractor or consumer – is fast and efficient support. How often have you sat on hold, listening to dubious music for hours, just to get an answer to a simple question? The answer is probably, 'One time too many'. Support is not a 'nice to have' in the prepaid sub-metering space, it's essential. Customers need to know that they have access to informed and interested professionals, and contractors want to install solutions that offer excellent service to their customers.

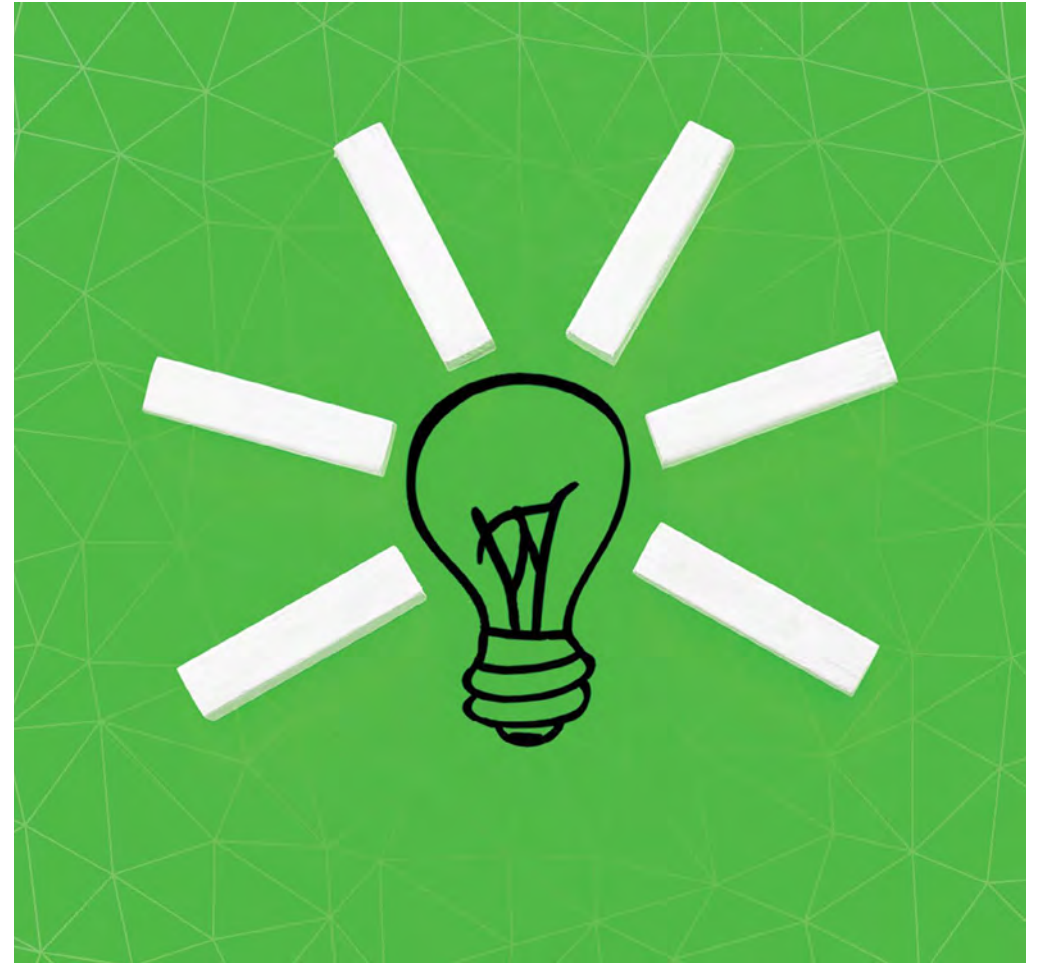
"Citiq Prepaid has invested into support, not just as an essential part of our infrastructure, but as part of how we build relationships with our electrical contractors," says Scheepers. "We believe that innovation is people – the people we work with and how we help them

to overcome challenges and grow their businesses. This underpins our continued investment into two call centres, a well-developed website with plenty of support articles and videos, and detailed support materials available on request."

Citiq Prepaid equips contractors with the right information at the right time and in the right format. Every part of the support system is designed to work holistically, helping you make decisions and resolve problems at speed, on demand. By constantly innovating support offerings and solutions, Citiq Prepaid is focused on encouraging contractors to expand their knowledge base by working with a partner that understands what they really need.

"The Citiq Prepaid website has recently undergone a complete transformation, redesigned to align with our support ethos and our commitment to making life easier for our customers," says Scheepers. "We have ensured that the site contains relevant information about our products and services along with videos, blog posts and articles designed to make life easier. We have also enhanced our social media platforms with curated content designed to provide readers with instant tidbits of information." The Citiq Installation Club (CIC) is another area where Citiq Prepaid has put a lot of effort into supporting electrical contractors with a rewards-based loyalty programme. The CIC gives back tangible financial rewards to Citiq Prepaid electrical contractors and connects members to customers through the customer support centre. In this way, Citiq Prepaid helps contractors to expand their businesses while earning money back for all their hard work.

"We want electrical contractors to choose Citiq Prepaid, of course, so we've done our best to make what



we offer you as alluring and exciting as possible," concludes Scheepers. "Want support? Online insights? Community? Rewards? We've ticked all these boxes,

and we plan to do even more in 2021"

Enquiries: [www.citiqprepaid.co.za](http://www.citiqprepaid.co.za)



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## Leaders in cable management and structural support systems

**O-line** specialises in cable management and structural support systems and caters for the high demands of the industrial sectors. Its focus is on mining, petrochemical and power, and today, it serves any heavy industry including the latest addition of renewable energy.

O-line's Projects Division caters for high-volume production of quality product in a short time period to meet the rigorous schedules of blue-chip projects. The company also aims to provide design and research capabilities, the core focus being problem solving, load capabilities and advanced corrosion protection. Thirdly, and most importantly, O-line offers the ability to be involved at design stage, working closely with the client, consultants, and project houses.

The company aims to be leaders in the design, manufacture and supply of quality products that meet the needs, wants and requirements of the cable management and structural support systems industry throughout Africa and the global arena.

### O-line cable ladders

#### OL:

- Is a range of economically priced, all-welded construction, single sided cable ladders.
- Is designed to carry cables in a horizontally mounted application over spans of up to 2 m at design working load.
- Is manufactured using 3 m long lipped Z-shaped side rails and lipped angle cross rungs at 375 mm centres with 17 mm x 7 mm laterally slotted holes at 25 mm centres.
- Includes splice sets which comprise two angle side rail splices, bolted in the vertical plane, using 4 x M6 x 16 mm cup square bolts and nuts and flat washers per splice.
- Has a range of accessories manufactured in 450 mm internal radius.
- Is designed to accept Uni-clamps, as well as cable ties. Cable ladder covers are available

and should be specified at order stage, if required.

#### Superspan:

- A range of competitively priced, all-welded construction, single sided cable ladders.
- Designed to carry cables in a horizontally mounted application over spans of up to 6 m at design working load. This product is acceptable for edge mounting applications, providing supports are not greater than 3 m apart.
- Manufactured using 5.8 m and 6 m long lipped-shaped side rails and lipped channel cross rungs at 305 mm centres. Rungs have 25 mm x 7 mm laterally slotted holes at 25 mm centres.
- Splice sets comprise two channel side rail splices bolted, using 8 x M8 x 16 mm cup square bolts, nuts and flat washers per splice.
- Has a comprehensive range of accessories manufactured in 450 mm and 650 mm internal radii. Cable ladder covers and earth-studs are available and should be specified at order stage, if required.
- Is designed to accept Uni-clamps, as well as cable ties. Ladder widths available on request.

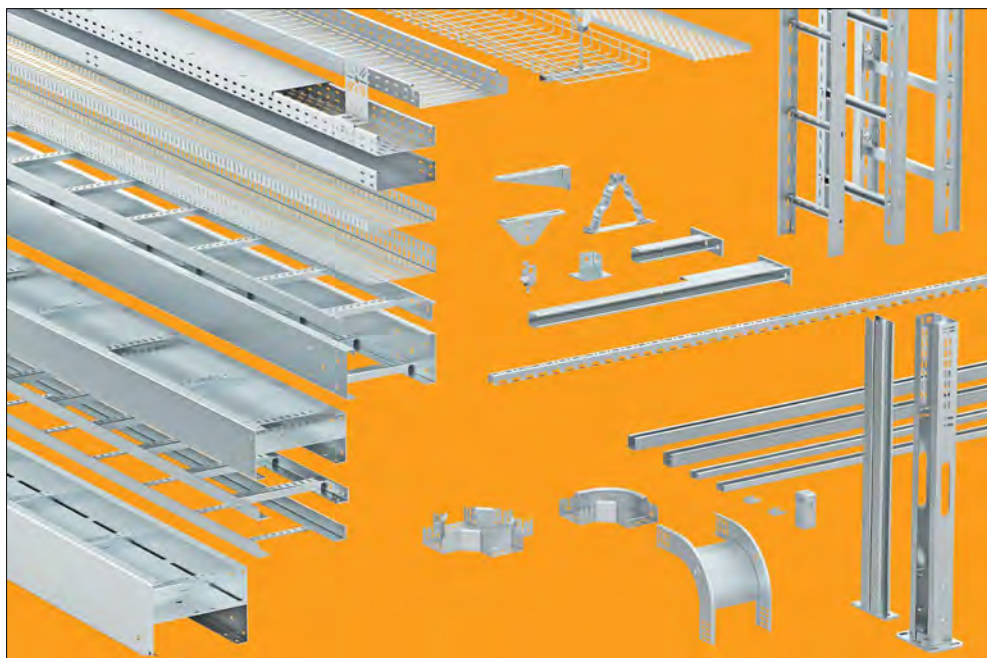
#### Powerspan:

- A range of robust, versatile, all-welded construction, single sided cable ladders.
- Specifically designed to carry cables in an edge mounted application over spans of up to 4 m (PS\*\*/2) and 5 m (PS\*\*/3) at design working load.
- May be used with equal success in the horizontally mounted application, with load capability varying in relation to the side rail depth chosen.
- Is manufactured using 2 mm (PS\*\*/2) or 3 mm (PS\*\*/3) thick by 3 m long lipped Z-

shaped side rails and channel cross rungs at 300 mm centres with 25 mm x 7 mm laterally slotted holes at 25 mm centres.

- Splice sets comprise two angle side rail splices, bolted in both horizontal and vertical planes using 8 x M8 x 16 mm cup square bolts, nuts and flat washers per splice.
- Has a comprehensive range of accessories manufactured from 2 mm thick steel in 450 mm, 650 mm and 1000 mm internal radii. Cable ladder covers and earth studs are available and should be specified at order stage, if required.
- Is designed to accept cable ties/Uni-clamps.

Enquiries: [www.o-line.co.za](http://www.o-line.co.za)



## Cable support systems for the perfect routing of cables

As a professional, you appreciate professional materials and easy handling. The cable support systems from O-line are tried and tested and fulfil the highest demands of an electrical installation.

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## Compact True-RMS meter for accurate electrical installation and troubleshooting



**Comtest**, local representative of Fluke, introduces the new Fluke 110, a versatile multimeter for accurately measuring voltage, continuity, resistance and more. Fluke multimeters have long been trusted by both residential and commercial electricians for all their essential electrical measurements. The new 110 is the ideal meter for go/no-go troubleshooting, offering manual and automatic ranging in a compact, ergonomic design for one-handed operation. The unit is shipped together with a holster and probe holders for easy storage. It also fits into the optional ToolPak™ magnetic hanger for hands-free operation.

Key features of the Fluke 110:

- True-RMS ac voltage for accurate measurements on non-linear signal.
- Resistance and continuity.
- Large white LED backlight to work in poorly lit areas.
- Safety rated CAT III 600 V.
- Min/Max/Average to record signal fluctuations.
- 3-year warranty.
- Included are Fluke TL75 HardPoint test leads and protective caps for high voltage areas, and a 9 V battery (installed).

Areas of application include industrial/facilities maintenance, electricians who work outdoors in cement plants or electrical utilities, wet facilities that include food or chemical processing, or in dusty environments like cement plants, steel mills and foundries. The Fluke 110 is also suitable for hazardous areas such as the mining industry (MHSA-approval pending), the petrochemical industry as well as in the military.

Enquiries: +27 (0)10 595 1821

## Brazen cable theft is hurting South Africa's infrastructure

The theft of copper cables remains a widespread problem in South Africa, resulting in service outages for ADSL customers as well as power outages for many citizens. Thieves have also become increasingly brazen, stealing from substations and telecommunications infrastructure during broad daylight.

Speaking to the South Coast Herald about a recent group of thieves that were caught red-handed stealing copper cables from the Eskom Sezela substation, Scottburgh SAPS communications officer Captain Adam Francis said these crimes are negatively affecting residents.

"Theft and damage to Eskom, Telkom and Transnet/Prasa cables and infrastructure have serious implications," Francis said. "It was shocking to see this happening in broad daylight," a witness told the South Coast Herald. "It is because of thefts like this that we are subjected to power outages such as the one experienced recently when we were without power for almost a week."

### Telkom turning off ADSL

Copper theft was amongst the factors which influenced Telkom's decision to decommission its ADSL

network in favour of newer technologies such as fibre and LTE. The older infrastructure is far more costly to maintain and the rampant cable theft only serves to exacerbate the operational costs of the ADSL network.

Subsequently, ADSL customers who live in areas with fibre and LTE coverage are being contacted and requested to switch from ADSL, with Telkom stopping repairs and cable replacements in many parts of its copper network. This has led to a steady decline in the number of ADSL customers across the country.

Source: MyBroadband







## Case study: Creating highly visible, colour-coded network infrastructure labelling

Well-identified network infrastructure is of great importance in Dark Fibre Africa's network. Thanks to smart, standardised colour coding on reliable labels from Brady, service provisioning and network maintenance becomes faster, and customer downtime risks are reduced with easy identification.

Dark Fibre Africa (DFA) is the leading open-access fibre optic company in South Africa, which enables its customers, such as ISPs, with fibre optic infrastructure to provide ICT related services to end customers.

### Challenge: Differentiate three fibre infrastructures with colour coding

DFA had the need to differentiate between the fibre infrastructure of three of their major service offerings by using colour codes available on the portable BMP51 Label Maker systems from Brady.

- Black on white: GPON services.
- Black on yellow: Dark fibre and all managed services.
- White on red: DFA core network infrastructure.

Black print on white or yellow are available as standard labels for the BMP51 Label Maker and were supplied by Brady. The white on red label was not a standard Brady product available on the BMP51.

Some challenges faced with competitor labelling products included:

- Print faded over time.
- Adhesion proved not sufficient.
- Additional maintenance was required to re-apply labels.

Because of this, DFA contacted Brady to present a solution in keeping with the established network infrastructure colour coding.

### Solution: Legible white on red labels that can be printed on-site

Brady fast tracked the request and within a few months developed a reliable cable label in red that could receive a white print with optimal legibility on a curved surface.

Before presenting a sample to the customer, R&D specialists tested the label extensively in Brady's in-house facilities. The new label construction and selected adhesive stayed attached to cables, equipment cabinets and distribution boards. Labels remained legible in heavily air-cooled environments indoors as well as in UV exposure outdoors.

On top of this, the label material was successfully adapted to fit a BMP51 Label Maker cartridge. Because of this, Dark Fibre Africa would be able to print the new label anywhere in their network infrastructure with the portable printers already in use.

After successful sample testing in Dark Fibre's network infrastructure, Brady agreed to also offer stock availability for the new white on red label. A



large stock of the complete colour code is always immediately available, as well as logistical and technical support.

### Result: Reduce downtime risks

Reliable labels that stay attached to cables, equipment cabinets, distribution boards and remain legible, are important for network maintenance, improvements

and troubleshooting. Clear identification enables technicians to quickly identify the infrastructure for fault finding and troubleshooting during network failures. This increases service provisioning and maintenance speed, and further reduces downtime risks and enhances speed of deployment.

Enquiries: +27 (0)11 704 3295

## Measuring cable length quickly and accurately

The MT900 is a precision cable length meter from Major Tech that uses Time Domain Reflectometry (TDR) to measure the length of a cable which has at least two insulated metallic elements, such as the cable's sheath or shield. The meter supports both BNC and RJ45 connections.

TDR analysis occurs when an energy pulse is propagated into the cable and the energy reflected back is observed and measured. The meter analyses the returned data and will provide an accurate measurement of the length of the cable, or the length to a point of interference (such as a cable break or short-circuit).

The meter is equipped with a 2.4-inch TFT colour screen on which the readings are displayed. The meter can be used on power, telephone, CAT V and LAN cables, and it automatically adjusts to the cable type detected. The technician is also able to use the function selection keys to more accurately match the cable being tested.

The meter includes a Cable Library of 20 standard cable types, while users can store up to 99 custom cable types in the memory of the MT900 to suit their specific work environment. Setting up and using the meter is made simple through the user-friendly function menu which allows one to adjust the settings, choose which cable type is being measured and so forth. The unit of length measurement can also be set by the user to either metres or feet.

The velocity of propagation (VOP) is similarly measured according to the type of cable being tested after the user enters the length of the cable. The VOP indicates how fast a signal travels by measuring the speed of the transmitted signal as compared to the speed of light.

The length of cable that can be measured by the MT900 starts at 5 m and the maximum length depends on the VOP of the cable being tested. It can be as long as 3 km where the



VOP is 99%, while for a VOP of 50% or lower, a range of about 1.5 km is possible.

The system also supports auto power off after a user-determined period of inactivity in order to save battery power. The MT900 is powered by two 1.5 V LR6 batteries. When the battery symbol turns red, the user should replace the batteries, or the accuracy of the measurements could be affected.

Enquiries: [www.major-tech.com](http://www.major-tech.com)

## Wire connectors for professional cable connections

The range of HelaCon push-in wire connectors from HellermannTyton is used for fast, easy and reliable connection and distribution of cable and conductors in electrical housing applications. They may be used within a typical range of housing voltage up to 450 volts. A huge variety of input poles allows high flexibility in application depending on the number of wire conductors and available space.

Cross-sections of up to 2,5 mm<sup>2</sup> can conveniently be processed and allow the use of thicker conductors when a voltage drop occurs. The way of cable distribution and branch connections varies from country to country due to the different types of wires, diameters, colours, junction boxes and mounting systems in use.

No matter how distinct the individual requirements are – the HelaCon wire connector series offers the best solution for every task – worldwide. Different colour codes help to easily differentiate the sizes of the push-in wire connectors. All cable entries are in a row on one side. A separate voltage test entry on the front guarantees safety during application, installation and maintenance. Any conductor with cross-sections between 0.5 and 2.5 mm<sup>2</sup> can be used at the same time, without impact on the adjacent connection.

Being compact in size the push-in wire connectors HelaCon fit perfectly in tight spaces and can generally be used in all kinds of junction boxes either on-wall or flush-mounted.

The range of push-in wire connectors is used for fast, easy and reliable connection and distribution of conductors in electrical housing applications. They are designed for use in a typical range of housing

voltage up to 450 V.

A huge variety of input poles allows high flexibility in application depending on the number of wire conductors and available space. Diameters of up to 2.5 mm<sup>2</sup> can conveniently be processed and allow the use of thicker conductors when a voltage group occurs.

Being compact in size they fit perfectly in tight spaces and can generally be used in all kinds of junction boxes either on-wall or flush-mounted.

The HelaCon Easy connectors are exclusively designed for use with solid wire up to a diameter range of 2.5 mm<sup>2</sup>. Bent, stranded or fine-stranded wire conductors may not be used.

### Using HelaCon

- Make sure that power is turned off before installation.
- Use solid copper conductors only.
- Strip them off approximately 11 mm.
- Insert them completely into the wire connector.
- Use voltage tester via separate test entry.
- To change or correct a wire, hold and twist it alternatively left and right while pulling the wire connector.

Enquiries: [www.hellermannntyton.co.za](http://www.hellermannntyton.co.za)



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<b>ABB South Africa</b> <b>Aberdare Cables</b> <b>Banding and Identification Solutions SA</b> <b>Bellco</b> <b>Brady SA</b> <b>CBI-electric: low voltage</b> <b>CJM Choke and Ballast Manufacturing</b> <b>Clearline Protection Systems</b> <b>Crabtree South Africa</b> <b>Eaton Electric SA</b> <b>Elegen</b> <b>Hamar Controls</b> <b>HellermannTyton</b> <b>Legrand</b> <b>Low Voltage Switchboards</b> <b>Newelec</b> <b>O-line</b> <b>Phambili</b> <b>Phoenix Contact</b> <b>Power Quality</b> <b>Pratley</b> <b>Schneider Electric South Africa</b> <b>Sollatek Electronics</b> <b>South Ocean Electric Wire Company</b> <b>Spazio Lighting</b> <b>Stone-Stamcor</b> <b>Strutfast</b> <b>Surge Technology</b> <b>Three-D Agencies</b> <b>Versalec</b> <b>Voltex</b> <b>Voltex MV/LV Solutions</b> <b>Voltex LSis</b> <b>Waco</b>	<b>ACTOM Electrical Products</b> Russel Ramsden <b>ARB Electrical Wholesalers</b> Sales <b>Atlas Group</b> Annie Storar/Imran Gaffoor <b>Banding and Identification Solutions SA</b> Rosa Dos Remendos <b>Bellco</b> Shiraj Wentzel <b>Brady SA</b> Customer services <b>Cable Croc</b> Lex Harvey <b>CBI-electric: low voltage</b> Jaco Viljoen <b>Citilec</b> Jeff Forman <b>CJM Choke and Ballast Manufacturing</b> Chris Bornman <b>Clearline Protection Systems</b> Tanya or Rakesh <b>Crabtree South Africa</b> Sales <b>Eaton Electric SA</b> Marlene Coetzee <b>Electrahertz</b> Frank Proude (Pta) Peet Lourens (Jhb) <b>Electro-Test Instrumentation</b> Winston Browning <b>Elegen</b> Christopher Hinckley <b>Eurolux</b> Sales <b>Hamar Controls</b> Corne De Villiers <b>HellermannTyton</b> Ingrid Nicolaus <b>Innopro</b> Ian McKechnie <b>Legrand</b> Johan Bosch <b>Lightning Protection Concepts</b> Trevor Manas <b>Low Voltage Switchboards</b> Rudi Barker <b>Magnet Electrical Supplies</b> Kevin Govender <b>Major Tech</b> Werner Grobbelaar <b>MCE Electric</b> Sales <b>Mimic Components</b> Christo Vosloo <b>Newelec</b> Luc Dutrieux <b>O-line</b> Sales <b>Phambili</b> Steve Lea <b>Phoenix Contact</b> Carl Coetzer <b>Power Quality</b> Mike Visser <b>Pratley</b> Eldon Kruger <b>Pretoria Motor Control Gear Products (PMCG)</b> Hannes Swartz/John Vorster <b>Radiant Group</b> Sales <b>Schneider Electric South Africa</b> Sales <b>Sollatek Electronics</b> Nick Allen <b>South Ocean Electric Wire Company</b> Yasmin Mahomed <b>Spazio Lighting</b> Sales <b>Stone-Stamcor</b> Mark Talbot <b>Strutfast</b> Tony Kinsella <b>Surge Technology</b> Paul van As <b>Three-D Agencies</b> Mark Jenkins <b>Uni-drive Electric Motors</b> Theo Mashego	<b>Versalec</b> Roland Fry <b>Voltex</b> Hugh Ward <b>Voltex LSis</b> Rose Schulz <b>Waco</b> Jaco Coetzee	<b>Bellco</b> Full range of conductors <b>Electrahertz</b> Full range of conductors <b>Elegen</b> Full range of conductors <b>Lightning Protection Concepts</b> Full range of conductors <b>Low Voltage Switchboards</b> Copper conduct <b>Magnet Electrical Supplies</b> Full range of conductors <b>O-line</b> Full range of conductors <b>South Ocean Electric Wire Company</b> Full range of conductors <b>Stone-Stamcor</b> Lugs and ferrules suitable for aluminium and copper conductors <b>Uni-drive Electric Motors</b> Full range of conductors <b>Versalec</b> Full range of conductors <b>Voltex</b> <b>Full range of conductors</b> Waco Full range of conductors
DISTRIBUTORS		CLAMPS AND SADDLES	EXOTHERMIC WELDING
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		CONDUCTORS (ALUMINIUM AND/OR COPPER)	EARTH ELECTRODE/EARTH RODS
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MASTS/POWER SUPPLY FILTERING	TELECOMS/DATA PROTECTION	POWER SUPPLY FILTERING	CONSTANT V TRANSFORMERS
<p><b>Bellco</b> Range of power supply filtering</p> <p><b>Electrahertz</b> Full range of power supply filtering</p> <p><b>Elegen</b> Full range of masts/power supply filtering</p> <p><b>Innopro</b> Full range of masts and power supply filtering</p> <p><b>Lightning Protection Concepts</b> Full range of masts and power supply filtering</p> <p><b>Voltex LSis</b> Range of power supply filtering</p>	<p><b>Innopro</b> Full range of telecom and data protection units</p> <p><b>Legrand</b> Full range of telecom and data protection units</p> <p><b>Lightning Protection Concepts</b> Full range of telecom and data protection units</p> <p><b>MCE Electric</b> Onesto dedicated socket data protection; Onesto circuit breakers and isolators; Schenker circuit breakers and isolators; Hyundai MCCBs and ACBs</p> <p><b>O-line</b> Full range of telecom and data protection units</p> <p><b>Phoenix Contact</b> Full range of telecom and data protection units</p> <p><b>Surge Technology</b> Dehn, Saltek and Copa</p>	<p><b>Phoenix Contact</b> Full range of power supply filtering</p> <p><b>Sollatek Electronics</b> Automatic voltage protection; spike, surge, over and under voltage protection and Voltage stabilisers; regulators &amp; voltage optimisation</p> <p><b>Voltex</b> Power supply filtering</p> <p><b>Voltex LSis</b> Power supply filtering</p> <p><b>Waco</b> Power supply filtering</p>	<p><b>Elegen</b> Full range of constant V transformers</p> <p><b>Eurolux</b> Wide range available</p> <p><b>Low Voltage Switchboards</b> Full range of constant V transformers</p> <p><b>Magnet Electrical Supplies</b> Full range of constant V transformers</p> <p><b>Radiant Group</b> Constant V transformers</p> <p><b>Spazio Lighting</b> Full range of constant V transformers</p> <p><b>Voltex</b> Full range of constant V transformers</p> <p><b>Voltex LSis</b> Full range of constant V transformers</p> <p><b>Waco</b> Full range of constant V transformers</p>
MAINS PROTECTION	EARTH LEAKAGE	ISOLATION TRANSFORMERS	OTHER
<p><b>ABB South Africa</b> Full range of mains protection devices</p> <p><b>ACDC Dynamics</b> Mains Protection</p> <p><b>ACTOM Electrical Products</b> Full range of surge protection products</p> <p><b>ARB Electrical Wholesalers</b> Full range of mains protection products</p> <p><b>Atlas Group</b> Full range available on request</p> <p><b>Bellco</b> Full range of mains protection devices</p> <p><b>CBI-electric : low voltage</b> Full range of mains protection devices</p> <p><b>Clearline Protection Systems</b> Full range of mains protection devices</p> <p><b>Electrahertz</b> Full range of mains protection devices</p> <p><b>Elegen</b> Full range of mains protection devices</p> <p><b>Innopro</b> Full range of mains protection units</p> <p><b>Legrand</b> Full range of mains protection units</p> <p><b>Lightning Protection Concepts</b> Full range of mains protection units</p> <p><b>Low Voltage Switchboards</b> Full range of mains protection units</p> <p><b>Magnet Electrical Supplies</b> Full range of mains protection units</p> <p><b>Major Tech</b> Full range of mains protection devices including MCB and isolators</p> <p><b>MCE Electric</b> Onesto dedicated socket mains protection; Onesto circuit breakers and isolators; Schenker circuit breakers, 12 mm circuit breakers; Schenker isolators; Hyundai MCCBs and ACBs</p> <p><b>Mimic Components</b> LED surge protection</p> <p><b>O-line</b> Full range of mains protection units</p> <p><b>Phoenix Contact</b> Full range of mains protection units</p> <p><b>Schneider Electric South Africa</b> Full range of mains protection devices</p> <p><b>Sollatek Electronics</b> Automatic voltage protection; spike, surge, over and under voltage protection and Voltage stabilisers; regulators &amp; voltage optimisation</p> <p><b>Surge Technology</b> Dehn, Saltek and Copa</p> <p><b>Voltex</b> Full range of mains protection</p> <p><b>Voltex LSis</b> Full range of mains protection devices</p> <p><b>Waco</b> Full range of mains protection devices</p>	<p><b>ABB South Africa</b> Full range of domestic and industrial earth leakage protection devices</p> <p><b>ACDC Dynamics</b> Earth leakage</p> <p><b>ACTOM Electrical Products</b> Full range of earth leakage protection devices</p> <p><b>ARB Electrical Wholesalers</b> Full range of earth leakage protection products</p> <p><b>Atlas Group</b> Various brands available on request</p> <p><b>Bellco</b> Full range of earth leakage devices</p> <p><b>Crabtree South Africa</b> Crabtree RCCB</p> <p><b>Eaton Electric SA</b> Full range of earth leakage devices</p> <p><b>Electrahertz</b> Full range of earth leakage devices</p> <p><b>Electro-Test Instrumentation</b> Full range of earth leakage devices</p> <p><b>Elegen</b> Full range of earth leakage devices</p> <p><b>Eurolux</b> Wide range available</p> <p><b>HellermannTyton</b> Instruments for testing earth leakage such as TELE10L, T4137, TEL11, TEL10LED, TEL1TLB and T2000</p> <p><b>Innopro</b> Full range of earth leakage protection</p> <p><b>Legrand</b> Lexic DPX; Lexic 4ELCB</p> <p><b>Lightning Protection Concepts</b> Full range of earth leakage protection</p> <p><b>Magnet Electrical Supplies</b> Full range of earth leakage protection</p> <p><b>Major Tech</b> The VE2P63, a 63A Double Pole Earth Leakage; the VE4P63, a Four Pole Earth Leakage</p> <p><b>MCE Electric</b> Onesto earth leakages; Schenker earth leakages</p> <p><b>Pretoria Motor Control Gear Products (PMCG)</b> Full range of earth leakage devices</p> <p><b>Schneider Electric South Africa</b> Full range of earth leakage devices</p> <p><b>Voltex</b> Full range of earth leakage products</p> <p><b>Voltex LSis</b> Full range of earth leakage devices</p> <p><b>Waco</b> Full range of earth leakage devices</p>	<p><b>ACDC Dynamics</b> Full range of isolation transformers</p> <p><b>ARB Electrical Wholesalers</b> Full range of isolation transformers</p> <p><b>Atlas Group</b> Full range available on request</p> <p><b>Bellco</b> Full range of isolation transformers</p> <p><b>Electrahertz</b> Full range of isolation transformers</p> <p><b>Low Voltage Switchboards</b> Full range of isolation transformers</p> <p><b>Magnet Electrical Supplies</b> Full range of isolation transformers</p> <p><b>O-line</b> Full range of isolation transformers</p> <p><b>Voltex</b> Full range of isolation transformers</p> <p><b>Voltex LSis</b> Full range of isolation transformers</p> <p><b>Waco</b> Full range of isolation transformers</p>	<p><b>Banding and Identification Solutions SA</b> Stainless steel cable ties and identification systems</p> <p><b>Brady SA</b> Cable and component identification systems, labels and label printers, Safety Signs and Lockout/Tagout systems</p> <p><b>Cable Croc</b> Anti-cable theft systems</p> <p><b>Citilec</b> Vision lighting – energy saving and LED Electro-Test Instrumentation 4-Terminal earth resistance tester</p> <p><b>Elegen</b> Diesel power generation</p> <p><b>Genlux Lighting</b> Manufacturers of LED and HID lighting solutions</p> <p><b>Hamar Controls</b> Panel builder: E, C and L Installation contractor</p> <p><b>HellermannTyton</b> Various tools such as 1000 V insulated tools with VDE approval and TSPIA, TSPIAF</p> <p><b>Lightning Protection Concepts</b> Various tools such as 1000 V insulated tools with VDE approval</p> <p><b>Low Voltage Switchboards</b> Electrical switchboards</p> <p><b>Major Tech</b> Earth resistance testers; earth resistivity meter; earth leakage testers up to 550 V; Earth clamp meters; earth leakage data loggers; leakage clamp meter</p> <p><b>Power Quality</b> Earthing and Lightning Protection Seminars; Planned maintenance; Earthing and Lightning Protection Audits</p> <p><b>Pratley</b> Pratley Cable Glands, Junction Boxes and Cable Terminations</p> <p><b>South Ocean Electric Wire Company</b> Low voltage cable and wire</p> <p><b>Sollatek Electronics</b> Range of inverters and UPS; voltage protection, conditioning and optimisation</p> <p><b>Stone Stamcor</b> Connectors for earthing</p> <p><b>Strutfast</b> Cable ladders, cable trays, cable trunking, wire mesh, cable support systems, cable clips and unistrut</p> <p><b>Three-D Agencies</b> Cable accessories, lugs, glands and cable ties</p> <p><b>Uni-drive Electric Motors</b> Supply electric motors, submersible pumps and a VSD</p>
TELECOMS/DATA PROTECTION	POWER SUPPLY FILTERING	CONSTANT V TRANSFORMERS	
<p><b>ACDC Dynamics</b> Telecoms/data protection</p> <p><b>Clearline Protection Systems</b> Full range of telecom and data protection units</p> <p><b>Eaton Electric SA</b> Full range of protection devices for telecoms and data protection</p> <p><b>Electrahertz</b> Full range of protection devices for telecoms and data protection</p> <p><b>Elegen</b> Full range of protection devices for telecoms and data protection</p>	<p><b>ACDC Dynamics</b> Power supply filtering</p> <p><b>ARB Electrical Wholesalers</b> Full range of power supply filtering</p> <p><b>Bellco</b> Power supply filtering</p> <p><b>Clearline Protection Systems</b> Full range of power supply filtering</p> <p><b>Electrahertz</b> Full range of power supply filtering</p> <p><b>Impact Power Innovations</b> Power supply filtering</p> <p><b>Low Voltage Switchboards</b> Full range of power supply filtering</p>	<p><b>Atlas Group</b> Full range available on request</p> <p><b>Bellco</b> Full range of constant V transformers</p> <p><b>Electrahertz</b> Full range of constant V transformers</p>	



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## Compulsory standards for Cable Gland: SANS 1213:2020

The latest SANS 0142:2020 and SANS 1213:2018 standards define cable glands as devices designed to permit the entry of armoured or flexible cable or insulated conductors into an enclosure while providing sealing and retention. They also provide other important functions such as earthing, bonding, insulation, cable guarding, strain relief or combinations of these.

However, there is still a common belief in the industry that cable glands are just 'fittings' and are treated as mere everyday consumables where price often takes precedence over quality and safety when it comes to their purchase and installation.

With the primary factors affecting the safe performance of cable glands being the integrity of their mechanical design and the quality of materials used in their production, the inferior and substandard way in which low cost versions are produced undermines the design strength of the product, which in turn, carries massive implications for the integrity of electrical installations.

### Brass quality in cable glands

Cable glands are manufactured from brass and then nickel plated. If the gland is made from poor quality brass and has poor quality plating the brass can be affected by exposure to atmospheric corrosion such as that found in marine and industrial environments. The result is that some of the zinc leeches out of the brass alloy, a process known as de-zincification, which reduces the strength of the gland.

To understand why the price of a low-quality gland can vary from a quality product, we must look at the wider picture.

Copper and zinc are globally-traded commodities, so the cost of quality extruded brass (an alloy of copper and zinc), which is the predominant raw material in cable glands, is similar in countries around the world.

Therefore, to circumvent this level playing field, very low-cost, low-quality glands are generally manufactured from what is known as 'heavy' or 'honey' brass. This brass is melted and cast from scrap metal without the strict control and guidelines of

recognised international standards. Therefore, unwanted high levels of metals such as iron, tin, aluminium and nickel are found in the alloy together with other contaminants and impurities. These uncontrolled levels of impurities cause the metal to be inferior in terms of mechanical strength and there is therefore a high risk of shearing threads when tightening glands.

International standards prescribe what the required brass alloy composition and the mechanical properties should be.

The mechanical properties depend on the alloy composition and, in some cases, on the amount of cold work done on the extruded brass.

Glands made from a true extruded brass alloy (Fig 2) are strong enough to withstand any reduction in strength whilst those made using low-grade honey brass (Fig 3) are much less able to withstand the de-zincification process.

Although the 'honey brass' glands have a deceptively brass-like appearance, their properties and performance will be very different to brass glands manufactured according to the international specifications for extruded brass rod and bar.

The standards that are commonly used during the manufacturing of quality extruded brass rod and bar and which prescribe the metal alloy composition for the manufacture of cable glands are:

- EN12164 CW614N Copper and copper alloys – Rod for free machining purposes.
- EN12168 CW617N Copper and copper alloys – Hollow rod for free machining purposes.

### Substandard polymers

Other problems with these cheap, substandard glands include the use of substandard polymers for seals, gaskets and shrouds. Sealing materials can vary greatly in their ability to withstand attack from ozone, airborne pollutants and environmental elements such as temperature variations, and an effect known as 'compression set'. This is where the seal material is compressed for long periods. If a low-quality seal suffers from compression set, it will eventually assume its

compressed shape, which means that it no longer exerts a sealing force against the cable.

While reputable manufacturers will have tested their polymeric seals to prolonged use and exposure, inferior products using low-grade polymer materials will become weak, especially when installed outdoors, making them likely to fail.

### Liability

In addition to the various safety implications of failed electrical installations, and the inconvenience inflicted on the end-user, there is the question of liability. Traceability is increasingly important in a society driven ever more by a 'culture of blame'.

Should poor quality products be to blame for an accident or fatality, the consequences would be serious, as ultimate responsibility lies with the installer rather than with the ill-chosen product.

Unfortunately, a visual comparison of cable glands will reveal very little difference in quality. This is why specifiers, installers and inspectors should verify the quality of cable glands by confirming that they are tested and certified according to the latest SANS 1213:2020 standard; are stamped with the manufacturer's name or logo, and sourced from reputable manufacturers.

### New compulsory standards

Unscrupulous, substandard manufacturers will offer poor quality glands based purely on price with no guarantee of long-term safety and reliability. Whilst quality and safety conscious gland manufacturers ensure that their cable glands are manufactured and tested to the latest relevant international and South African standards and offer superior performance and safety.

Furthermore, it is illegal to supply products which falsely claim compliance with a SANS standard in any way. Unscrupulous manufacturers often use phrases like 'tested to', 'designed to' or 'complies with', which are meaningless if they do not have the test reports and certification to back up their claims.

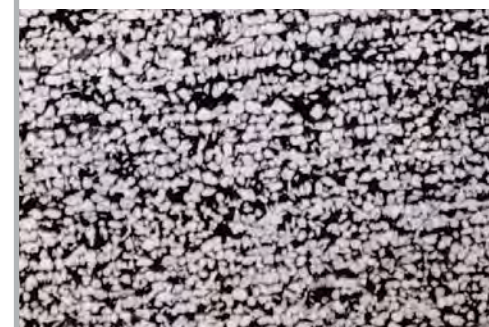
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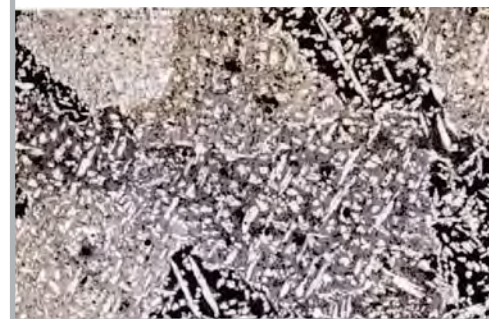
De-zincification results in glands becoming brittle and breaking. They can become detached, affecting the earth continuity and causing the installation to fail completely.



High quality extruded brass showing uniform microstructure of the alloy.



Low quality honey brass showing weak uneven microstructure and impurities in the alloy.



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glands flooding the market, it is necessary to raise awareness of the compulsory safety standards in this field.

SANS 10142 is concerned with ensuring the basic safety of electrical installations. To ensure the protection of people, animals and property and the proper functioning of an installation.

Under the compliance section of the latest edition 3 of the South African wiring code SANS 0142 of 2020 it states in clause 4.1.1: "Table 4.1 gives a list of commodities and the applicable standards. The commodities given in column 1 shall comply with the applicable standards given in column 3."

Table 4.1 lists the applicable compulsory standard for cable glands is SANS 1213.

It is also important to point out that in SANS 0142 the reference to applicable, compulsory standards always refers to the latest revision of those listed standards.

Therefore, in terms of the OHS Act, it is illegal to install cable glands that are not fully certified to the latest SANS 1213:2018 edition 3 standard.

It is no use paying careful attention when selecting high-value electrical equipment for installation and then undermining the safety and reliability of the entire installation by overlooking the quality and certification of cable glands. Cable glands form an integral part of an electrical installation and the choice of gland which is not certified to the latest SANS 1213:2018 edition 3 standard can result in the whole installation being illegal and requiring costly re-work with certified glands or worse still, could result in costly failure and even injury.

Enquiries: Arthur Cameron, CCG Cable Terminations,  
Tel +27 (0)11 394 2020 or ccg.arthur@icon.co.za



## EM launches basic surge protection devices

Surge protection is important to reduce stress on any equipment when load shedding switching surges occur, while higher lightning activity also means surges are more common. Therefore, surge protection devices (SPDs) are critical to extend the life of appliances, electronics and other equipment.

It is for this reason that ElectroMechanica (EM) has launched two new surge protection products as part of its comprehensive solutions offering. Not only is EM the exclusive local distributor, but the new products are also available in convenient hanging blister packs that are easy to display.

DEHNCord is ideal for any low amperage 230 V application, from industrial and commercial to residential. The form factor is key here as it allows for a SPD to be installed close to the equipment to be protected. DEHNGuard Basic is aimed at residential distribution board applications only. This may expand into the small commercial segment due to the new

SANS 10142 coming into effect, which will require a basic device for higher lightning activity areas.

DEHNGuard Basic provides the first line of defence against surges. DEHNCord is used in conjunction with this product at plug points, terminal boxes or other equipment housings to provide the best voltage protection level, vastly increasing the protection provided. DEHNCord can also be used with any other DEHN SPDs in distribution boards, whereas DEHNGuard Basic is the simplest form of surge protection only at distribution boards, protecting the electrical system and any equipment within 10m.

DEHNGuard Basic fits onto DIN rail and Samite, which is uniquely popular in South Africa. It also fits into most residential distribution boards and features a compact footprint. DEHNCord fits many popular South African plug boxes, gate-motor boxes and LED lighting housings, and comes pre-wired for fast and easy installation.

“As a well-established family-owned brand with over 110 years’ experience and a great reputation, DEHN conducts extensive up-to-date testing on all its devices to the latest standards. Besides additional features, DEHN also uses the highest-quality materials and manufacturing,” comments EM Product Manager Christo van Rensburg. All of DEHN’s imported products comply with the latest international standards for SPDs, as adopted directly by the South African Bureau of Standards (SABS).

The latest standards which all surge protection should be manufactured in accordance with are IEC/SANS 61643-11 for power SPDs and IEC/SANS 61643-21 for information technology SPDs. While some SPD manufacturers still use the old withdrawn standards, DEHN is guaranteed to be up to date. EM also provides first-line technical product support and sales support, working directly with DEHN’s experts for any queries or special applications.

Enquiries: +27 (0)11 249 5000



## Africa, a thunder and lightning hotspot, may see even more storms

Africa is experiencing more intense and more frequent thunderstorms as global temperatures rise, according to researchers at Tel Aviv University. The continent already has many of the world’s lightning hotspots, with storms that can be extremely destructive and, sometimes, deadly. This month, for example, a conservation group reported that four rare mountain gorillas had been electrocuted by lightning in Mgahinga National Park, Uganda. In a calamitous episode in 2011, a lightning strike on an elementary school in the same country killed 20 children and injured nearly 100.

Mass casualties like these are rare. But meteorologists wondered at the time whether thunderstorms were becoming more common in Africa in the era of climate change.

The answer, according to the new research, published in January in the American Meteorological Society’s Journal of Climate, is yes. An increase in temperatures in Africa over the past seven decades correlates with bigger and more frequent thunderstorms, the researchers found.

If the finding holds up, that could mean more fatalities and more economic damage. “Lightning is the number one killer when we talk about weather in tropical countries,” said Colin Price, professor of Atmospheric Sciences at Tel Aviv University and the study’s lead author.

There is no organised data for lightning casualties that covers all of Africa, but a 2018 study of eight countries put the number of deaths at about 500 per year. Globally, estimates range from 6 000 to 24 000 deaths per year.

Africa faces elevated risk for reasons that go beyond the relatively high frequency of storms on the continent. Poor urban design and infrastructure, for example, can worsen flooding during heavy storms, according to Alistair Clulow, a professor of agrometeorology at the University of KwaZulu-Natal. That, in turn, can make lightning strikes more deadly because water conducts electricity.

Rural communities also face risks. Farmers and herders work in the open, which makes them more vulnerable during storms. Houses in rural areas often lack plumbing or wiring that can act as grounding against lightning strikes.

Global data on the economic impact of thunderstorms is patchy, but a 2008 assessment by the National Lightning Safety Institute in Louisville, Colorado, placed the annual costs in the United States at \$5-billion to \$6-billion. That includes forest fires and damage to structures from lightning strikes, and flooding from heavy rains.

Dr. Price and his co-author, Maayan Harel, looked at 2013 thunderstorm data from the World Wide Lightning Location Network, and determined which



climate-related variables had the most influence on storms and then used those variables to build a model that created a simulated history of thunderstorm activity over Africa from 1948 to 2016.

The project took seven years. Their next study will look at thunderstorms in Southeast Asia, another tropical hotspot. Because of data limitations and differing methodologies, there is no consensus, for now at least, on how climate change will affect thunderstorms, or whether more thunderstorms would necessarily mean more lightning strikes.

A study in Nature Climate Change in 2018, for instance, forecast a decrease in lightning as the world warms. One of the authors of that paper, Declan L. Finney,

a meteorologist at the University of Leeds, said it was important to keep an open mind about how predictions could change as scientists refined their methods.

“There’s still a lot of uncertainty, but this work is useful in contributing to that discussion,” Dr. Finney said of the new study. Researchers agree, though, that simple measures like developing systems to warn people of impending thunderstorms and installing grounding systems in buildings could go a long way in avoiding deaths and injuries. Thunderstorm patterns can’t be changed, Dr. Price said, “but we can give people protection.”

Source: New York Times

## Understanding utility capacitor bank switching transients

According to the IEEE Guide on the Surge Environment in Low-Voltage (1000 V and Less) ac Power Circuits C62.41.1-2002, utility capacitor bank switching transients is an issue that exists in nearly every electrical system. Here, John Mitchell, global sales & marketing director at supply, installation and repair specialist CP Automation, offers an accessible introduction to this topic, and details why effective surge protection is the answer.

The application of utility capacitor banks has long been accepted as a necessary step in the efficient design of utility power systems. Generally, capacitor switching is considered a normal operation for a utility system and the transients associated with these operations, are largely not a problem for utility equipment.

However, this is not always the case. High voltage surges are normally covered by surge protectors. In contrast, traditional surge protection devices (SPDs) do not account for low level transient surges. These low level transient surges can be magnified in a customer facility, if the customer has low voltage power-factor correction capacitors, or can result in the nuisance tripping of power electronics-based devices, such as variable speed drives (VSDs), which are very susceptible to changes in power quality.

There are a number of transient-related concerns that are generally evaluated when transmission and distribution shunt capacitor banks are applied to the power system. One example of these many

switching events that can cause transients on a utility system, is capacitor energising. Due to their regularity and impact on power system equipment, they often receive special attention.

Another example is distribution system overvoltages, resulting from the energisation of transmission system capacitor banks. These can be sufficient to spark over gapped SPDs – typically silicon-carbide (SiC) design. In comparison, gapless SPDs – typically metal oxide (MOV) design, should be capable of withstanding this event.

These transient switching overvoltages might simply damage low-energy SPDs or cause a nuisance trip of power electronics-based equipment. Nevertheless, case histories have been reported of complete failure of end-user equipment.

Other power quality symptoms related to utility capacitor switching include: customer equipment damage or failure, tripping of process equipment, SPD failure, and computer network problems – all of which are highly disruptive.

Similarly, capacitor switch restrike events can produce high-voltage surges that result in severe energy-duty for adjacent SPDs, or damage to unprotected equipment. It is therefore recommended to select a switching device that will minimise the possibility of a restrike event. In addition, it is advisable to protect adjacent equipment with SPDs of appropriate size.

Further application concerns often include:

- Overvoltages associated with normal capacitor

energising.

- Open line/cable end transient overvoltages.
- Phase-to-phase transients at transformer terminations.
- Voltage magnification at lower voltage capacitor banks.
- Arrester duties during restrike events.
- Current-limiting reactor requirements.
- System frequency response and harmonic injection.
- Impact on sensitive power electronics loads at customer facilities.
- Ferroresonance and dynamic overvoltage conditions.

While power quality issues can be caused by an unexpected event such as a lightning strike to the grid, issues relating to the threat of lower level transient surges can be and should be mitigated against.

To eliminate the effects of low-level switching transient events, transient protection systems such as SineTamer offer a new opportunity to protect valuable assets from the transient events that occur millions of times, every day. Its frequency attenuation network monitors the frequency, not just the voltage. The engineered transient disturbance filter is designed to monitor all 360 degrees of the sine wave, making it capable of detecting rapid changes in frequency.

Although this article is certainly not intending to be a comprehensive review of this topic, it provides strong evidence for the need to protect equipment

from low level transient surges. Choosing the right SPD is therefore a crucial step and shouldn’t be ignored.

Enquiries: [www.cpaltd.net](http://www.cpaltd.net)





## Refrigerators need a surge protector



Sollatek's range of voltage and surge protection.

After the festive period, the last thing you want is for your refrigerator to break and having to incur expenses of repairing or worse – replacing it!

Fridges and freezers are regarded as one of the most necessary appliances in a home, but they are always exposed to risks arising from common power problems. If a fridge or freezer is exposed to constant low voltage or surges, then not only could the cooling of food and drinks be affected but it could also cause a disastrous effect on the refrigerator's compressor leading to complete failure.

### Protecting the fridge/freezer

The FridgeGuard is a plug-in adapter which simply connects between the mains outlet to a fridge/freezer to offer protection from unreliable power. The iSense dial on the front of the FridgeGuard allows you to customise the level of voltage protection to match your precise requirement.

The FridgeGuard protects against:

- Low voltage – Occurs due to high demand causing a drop in the supply voltage. Low voltage can cause compressors to overheat resulting in damage or even failure.
- Surges and spikes – Repeated exposure to spikes and surges will damage electronic equipment.
- Powerback surges – Commonly occur after power cuts. As the mains supply resumes, it usually returns with a surge which could be quite high and damaging in many instances.

### How does the FridgeGuard solve power faults?

The FridgeGuard continuously monitors the supply to a fridge/freezer. If the voltage drops below the acceptable level, it will disconnect the power to protect the refrigerator. Once the power returns to normal, the FridgeGuard will reconnect the power to the appliance automatically after the wait time. The time delay is essential in allowing the mains to stabilise before reconnecting it to the fridge / freezer and avoiding repeated on/off during fluctuations. The FridgeGuard will absorb spikes & surges without interruption.

### Features:

- Microprocessor controlled – high speed response.
- Solid state reliability – no moving parts.
- Current rating: Up to 6 Amps.
- Wait time: Three minutes to allow gasses to neutralise.
- TimeSave: Provides maximum operation time to the fridge / freezer when mains have been disconnected for longer than the wait time.
- User adjustable dial to control the FridgeGuard sensitivity.
- Quiet, unobtrusive operation.
- Suitable for all fridges, freezers and other refrigeration equipment.

Enquiries: [nick.allen@sollatek.co.za](mailto:nick.allen@sollatek.co.za)

## The importance of surge protection in the lightning protection arena

In order to understand the need for surge protection, it is important to understand how lightning causes damage. The sources of lightning damage can be quite different, therefore different protection techniques may be required to protect different items.

There are two areas of concern when evaluating a building or structure, namely the structure itself, and all incoming cables, meaning IT equipment as well as power. From this, the four sources of damage are derived, as per the following possibilities:

- Having a lightning strike directly to the building.
- A strike near the building.
- A strike directly to an incoming line.
- A strike near the incoming line.

Nearby strikes cause surges: in striking neighbouring buildings, surrounding objects or areas next to incoming lines, the lightning current coming down generates a magnetic field, which is cast over the structure or lines. This magnetic field generates an induced current on the incoming line, or on cables inside the structure. To prevent resulting damage to electrical equipment, surge protective devices (SPD) are recommended to reduce the in-

duced effects of lightning. To prevent burning or mechanical damage, lightning rods are installed, also known as external lightning protection.

By installing external protection, users protect against structural damage, but this will not necessarily prevent electronic equipment from being damaged (for example TVs, Internet routers and appliances such as kettles, fridges, microwaves and so on). Therefore, in order to protect equipment, surge protective devices are needed as well.

The calculation from the SANS 62305-2 standard to evaluate the risks are as follows:

- The area to be considered for direct strikes is a radius around the structure, which is three times the height of the structure.
- The area to be considered for surges is a radius of 500 metres around the structure, and can be up to two kilometres away in both directions for incoming lines.

The risk of resultant surges therefore exceeds that of direct lightning strikes, meaning that the correct installation of surge protection devices is extremely important. Other benefits of surge arresters include the minimising of switching surges coming from the grid. This is a relevant topic when seen

## How to ground electrical components

Learning how to ground electrical components is important if you want to maintain an electrical hazard-free home. Most people in South Africa unknowingly live in homes which have several potentially dangerous electrical hazards. Most of these hazards are caused by naked electrical wires and electrical components which are not properly grounded.

To reduce the electrical hazards by grounding, you need to first understand what grounding actually means and how it makes a home safer. Electricity always flows through complete circuits made of conductors. All metals, water and the human body are good conductors of electric current. That is why you can easily get shocked when you touch a live wire. The shock is simply electric current flowing through your body. Electric current has an affinity for the earth and usually takes the path with the least resistance. When you touch a live wire, body forms a minimal resistance path which subsequently causes an electric shock. The best way to prevent such occurrences, especially if you have children playing around in your house, is to ensure that all the wires and electrical components are grounded. 'Grounded' means that they are connected to a conductor which would direct excess current straight into the earth.

Currently, most homes in South Africa have been built with sockets which allow three plugs. The lower two holes usually conduct live current through the live and neutral wires of the respective electric component. The upper hole which is positioned above them is connected to a conductor which directs current straight to the earth. Its main purpose is directing excess current into the earth. For this to be effectively done, your electric component needs to have three prongs. The live and neutral prongs are connected to the lower holes while the upper prong is slotted to the grounding hole. Such components are the most effective in reducing the electrical hazards since all the excess current will be automatically directed into the earth. Sometimes the grounding wire may malfunction, causing an electric current in your component. That means that although you may be committed to only purchasing such components, it is very important to learn how to ground electrical components.

Unfortunately, not all components come with three prongs to connect them to the socket. Many of the small components, especially ones which were made a couple of years back only come with just two prongs which conduct live current. If such a component malfunctions or there is excess build-up of current, there is a significant chance that electric current will flow through you to the ground. This may be fatal, especially since the national grid in South Africa distributes about 240 V of power to each house. Such current is effective in powering components but lethal to the human body. It is therefore important to ensure that everyone in your home understands how to ground electrical components.

The best way to do this is providing a direct connection between the component and the earth. If you have the resources, you can replace the two-wire system in the respective components with a three-wire prong which is earthed.

Enquiries: [www.adcenergy.co.za](http://www.adcenergy.co.za)



against the background of recent load shedding from the South African grid.

Over the years, DEHN has developed numerous market-leading surge arresters, with the latest offering being the new DEHNgard ACI surge protective device. This surge arrester with ACI technology allows users to save space, time and costs. It is a prewired unit that consists of a base part and plug-in protection modules. Its benefits include:

- Safe dimensioning and the elimination of mistakes: The new switch/spark gap combination is integrated directly into, and ideally adjusted to, the arrester. A connection cross-section of just 6 square millimetres makes for easier installation and saves time that otherwise needs to be spent dimensioning the cross-section.
- Being able to withstand temporary over-voltages (TOV) increases system availability and saves on maintenance and repair costs. TOV caused, for example, by loss of neutral, can destroy conventional surge protective devices. The new ACI arresters have a much better TOV withstand.
- Zero leakage current increases the service lifetime of arresters. ACI arresters also avert the accidental tripping of the insulation monitoring and contribute towards operational safety.

Enquiries: +27 (0)11 704 1487



BEKA Schröder wins Best Corporate Social Responsibility Award

BEKA Schröder is proud to have won the Best Corporate Social Responsibility of the Year Award at this year's SEIFSA Awards for Excellence. BEKA Schröder was given this recognition for the work they have done in uplifting a community in one of the more impoverished areas of the country.

BEKA Schröder donated 160 LED streetlights to Chintsa East in the Eastern Cape. Chintsa East, located 50 km north east of East London, is a small village with a big heart for their community. The donated streetlights are installed through the Chintsa East Location, lighting up the streets so women and children can walk around freely at night, kids can play soccer under the streetlights, and everyone feels safer. This is the first streetlight installation for Chintsa East.

Towards the end of 2019, BEKA Schröder approached African Angels to find out what Chintsa East's biggest need was to uplift the community, and their answer was street lighting. With the expansion of the community, this has unfortunately led to an increase of nocturnal crime activities within the village. With the installation of streetlights, this would be curbed, and the community would feel safer. BEKA Schröder decided to join forces with the Community, Great Kei Municipality and Eskom and to donate 160 ZIYA-E LED streetlights and the installation thereof.

The streetlight installation was met with great excitement. There is a newfound freedom after dark in the village where kids can play in the street and the community can move safely in the streets. This co-lab project is a wonderful example of how South Africans can work together to make things better for all.

You can watch the video of the installation at: <https://youtu.be/CuhjIkuSnbg>

African Angels is a local charity who runs a school for kids from the township, a community computer lab, a boys' mentoring project, and an early childhood development project.

BEKA Schröder locally develops and manufactures energy-efficient LED lighting products, designed and suitable for local conditions. The company is extremely proud to be associated with this very special project in bringing lighting to a community.

Enquiries: +27 (0)11 238 0000

Radiant Lighting launches new website

Radiant Lighting is proud to announce the launch of its newly designed website. The way its customers experience the Radiant Lighting brand is of utmost importance to the company, whether it be in person, over the phone, or online. This is what prompted the company to update its website to ensure a slick, uncomplicated user experience.

The new site features a clean, contemporary design, making it easier to navigate and access essential information. New functionality includes improved mobile and tablet responsiveness, a quote request function, a product spec sheet PDF and email function, and store finder. The company has also made it simple to conveniently share its products and other website content to platforms such as Twitter, Instagram, and WhatsApp. All Radiant Lighting's useful articles have been compiled in one location, so keeping up to date with Radiant is just a mouse click away.

The new website is a reflection of the ever-evolving Radiant Lighting brand. The company is dedicated to providing customers with a streamlined user experience and continued improvements on this more modern, intuitive design.

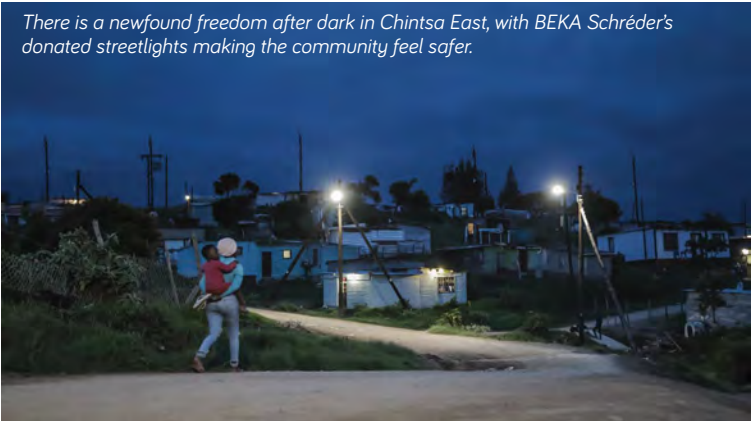
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Fl.t.r.: Kaizer M. Nyatumba (SEIFSA – CEO), Peter Badenhorst (BEKA Schröder – Regional Manager Eastern Cape), Grant Combrink (BEKA Schröder – Marketing and Segment Development Manager), Tuli Mkatshwa (ACSA – Specialist Socio Economic Development).



There is a newfound freedom after dark in Chintsa East, with BEKA Schröder's donated streetlights making the community feel safer.

RO409   LS0027

Metal outdoor wall light  
230mm(w) x 380mm(h)

[www.radiant.co.za](http://www.radiant.co.za)

OUTDOOR LIVING



RO402   LS0020  
Metal outdoor pendant  
180mm(w) x 1500mm(h)



RO404   LS0022  
Metal outdoor pillar  
180mm(w) x 796mm(h)



RO403   LS0021  
Metal outdoor post top  
140mm(w) x 295mm(h)

Radiant Lighting has a diverse range of outdoor lighting designs perfectly suited to improve your outside living area. Whether you want to tighten security, enhance exterior lighting or simply refresh your outdoors, our team of specialists are on hand to help you create your perfect garden.



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## Osram LEDs illuminate cycling shirts and jackets

With people around the world taking to bicycles like never before both for recreation and transportation during the pandemic, Osram has teamed up with a premium maker of cycling apparel to embed LED illumination strips in jackets and vests.

Slovakian sportswear maker Isadore is weaving the strips between the shoulder area and waist – along the outer 'lat' muscles – so that they are visible from behind and from the side.

Unlike the reflective material common in cycling attire, the lights provide active illumination rather than requiring another light source to trigger visibility.

"It is simply switched on by connecting a power bank," Osram said in a brief announcement. The power bank is an aluminium alloy rectangular unit, roughly the size of a small smartphone. It slips into a jacket or shirt pocket where it connects to a USB outlet wired to the lights. Isadore says on its retail website that the USB-chargeable 4000 mAh device holds its charge for between 5 and 10 hours, depending on weather conditions and on how the rider deploys the strobe and flash settings. An LED indicator shows the battery level.

The illuminated clothing does not come at everyday prices. Isadore offers it as part of its Merino Membrane Softshell line of jackets and vests. An Osram-equipped jacket costs just under R7000, and R4500 for an Osram vest, for both men and women. The prices do not include the power bank, which lists for an extra R400 or so.

The illuminated, breathable polyester, wool, and spandex (also known as Lycra and elastane) blend clothing is, according to an Isadore promotion, 'fully washable' on a cool setting, but does not take well to tumble dryers.

Enquiries: [www.osram.com](http://www.osram.com)



## Damp proof luminaires for industry and agriculture



Ledvance has updated its new second generation of Damp Proof Special luminaires to be suitable for even more demanding tasks in industry and agricultural applications. Their fully sealed housing is made of highly resistant PMMA making it impervious to chemical detergents, cleaning liquids and oil. The Damp Proof Special models offer IP67 and IP69K protection and come with a through-wiring cable already installed in the luminaire. The Deutsche Landwirtschafts-Gesellschaft (DLG) certified the luminaires' ammonia resistance confirming that the sealed housing and proper material choice allow usage in farming applications. The Damp Proof Special luminaires come with a five-year warranty and are now available for installers.

The new version of the Damp Proof Special luminaires is specifically designed for use in agriculture and industry such as the keeping of farm animals (except poultry), food manufacturing, open car parks and underpasses, garages, workshops and assembly lines. With their rotatable mounting, the luminaires can be fixed in any position for optimal light steering, be it indoors or in uncovered and unprotected outdoor areas. The high efficacy LEDs and the attractive round shape of the product allow up to 135 lm/W with homogenous wide beam angle and flicker < 5 percent providing an evenly distributed light.

Adjustable mounting brackets can be positioned freely over the luminaire's full length allowing the use of existing mounting holes making, which makes the installation process easy. The Damp Proof Special luminaires also offer a tool-free electrical connection with its external electrical fast connector and the clear colour marking of connectors for L, N, E.

Ledvance's portfolio of Damp Proof luminaires consists of the Performance and the Value class. Besides the Damp Proof Special, the Performance class also features a classic as well as a modern compact shape. In addition to On/Off versions, the classic luminaire also features DALI functionality. The Value class is available as classic and slim versions.

Enquiries: [www.ledvance.com](http://www.ledvance.com)

## basicDIM Wireless Technology the core of modern lighting installation

Sofitel Dubai Jumeirah Beach – owned by French Sofitel Hotels and Resorts – is a luxury 31-storey, 444-rooms 5-star hotel located in Dubai's posh recreation promenade The Walk and just around 100 metres away from The Beach. Overlooking the Arabian Gulf, it opened its doors last 2009. It offers breath-taking views of Dubai Marina and The Beach. It also boasts a unique and refreshing combination of contemporary design, the latest technology, and French ambiance with an Arabic twist.

Sofitel Hotels & Resorts decided early this year to refurbish Sofitel Dubai Jumeirah Beach, which includes the lighting system in the lobby and main restaurant areas for the initial phase. They wanted to reduce energy as well as maintenance costs, and to do so, they have decided to replace the halogen lamps to LED luminaires. LED luminaires are at least 50% more energy-efficient than halogen lamps, and in terms of lifetime hours, LED lasts around 50 000 hours while halogen lasts around just 1 200 hours.

Sofitel Dubai Jumeirah Beach also wanted a modern lighting solution that can control the luminaires in a smooth and hassle-free manner. They commissioned Acumen Systems, a key client of Tridonic in Dubai, to deliver a lighting package that will enable them to realise their requirements. The solution given is installing a complete lighting control system package which can adjust the percentage of lighting during different times of the day and also, to enable further energy savings.

The lighting design for Sofitel Dubai Jumeirah Beach that Acumen Light came up with was something simple but to the point. Because of 'perfect' technical support as well as good-quality lighting solutions, it was a no-brainer for them to select Tridonic as their partner in the lighting package they designed and manufactured. The spotlights, LED strip lights, as well as decorative LED fittings that were used for the project were all equipped with Tridonic's basicDIM Wireless LED Drivers and modules. Overall, 700 units of basicDIM Wireless Casambi Ready Bluetooth components as well as 50 units of DALI PCD 1-300 one4all were used for the initial phase. The basicDIM Wireless nodes were set to three simple dimming scenes using the Tridonic 4remote BT (Bluetooth) App: 100%, 60%, and 30%.

At least 50% energy savings is estimated as a result of the retrofitting.

Enquiries: [www.tridonic.ae](http://www.tridonic.ae)

## Another European soccer team goes for UV-C to fight COVID-19

Signify is installing coronavirus disinfection lighting in the locker rooms of another European professional soccer team, this time heading three miles up the road from company headquarters to outfit the Dutch team in its hometown of Eindhoven, where Signify is a corporate sponsor.

PSV Eindhoven, which plays in the Netherlands' top league, will start installing a total of 15 UV-C ceiling luminaires in the locker rooms at the club's stadium, as well as at indoor areas at a separate training facility.

Eindhoven is at least the second club to deploy Signify's Philips brand UV-C luminaires. Previously, Signify announced that it won a deal to install ceiling-based UV-C air purifiers for the RB Leipzig soccer team in Germany, in dressing rooms and other areas.

The ceiling fittings do not use LED radiation sources. Rather, they house conventional mercury-vapor lamps, emitting at 254 nm, which is part of the C-band of ultraviolet radiation. Ultraviolet is invisible radiation, as opposed to visible light. But ultraviolet is commonly referred to as light because it comes from light sources such as the sun and lamps.

UV-C has a shorter wavelength than the A and B bands. Unlike A and B, natural solar-emitted C does not reach Earth, because the ozone layer absorbs it.

A Boston University lab showed last year that the Signify artificial UV-C technology kills the SARS-CoV-2 virus that causes COVID-19, generally known as the coronavirus.

UV-C is harmful to the skin and eyes, but Signify says the design of its ceiling luminaire makes it safe to use when people are present.

The suspended UV-C source points upwards to the ceiling, rather than down at the room and people, using shielding and optics. It is built for air disinfection rather than for treating objects and surfaces. Air circulating through a gap between the ceiling and the fixture passes through UV-C radiation, which deactivates the coronavirus as well as other airborne viruses and bacteria.

"Safeguarding player health is very important to us and essential for matches to continue," said PSV commercial director Frans Janssen. "That is why we want to protect them and the visiting players to the best of our ability. We are convinced that the Philips UV-C disinfection upper air lighting enables us to provide our players with that extra layer of protection."

PSV and Signify share a long interwoven corporate history that is apparent today in Signify's co-sponsorship of the team, along with Signify's former parent, Royal Philips N.V. which, until about five years ago, had been the main sponsor for a century. Together, they are now among several sponsors. PSV's stadium is called Philips Stadium under a deal that started in 2015, before Signify's 2016 split from Philips as a separate company called Philips Lighting, which then changed its name to Signify in 2018.

The football team started life in 1913 as a team for Philips employees. The P in PSV stands for Philips, and the acronym is short for Philips Sport Vereniging (Philips Sports Union).

Signify still uses the Philips brand name. It has made UV-C lamps and luminaires a top priority since April last year, in the earlier days of the coronavirus pandemic. It is ramping up production of 12 different luminaires and UV-C chambers, which it is selling both under its own label and on an OEM basis.

In an example of UV-C lighting used when people are not present, two 19th-century Spanish theatres are deploying UV-C to disinfect empty seating and rehearsal areas.

Enquiries: [www.signify.com](http://www.signify.com)





SHEDDING LIGHT WITH PHILIP HAMMOND

## Moving lighting forward into the new year

It is already a new year. By the time that you read your January edition of Sparks, the year will just be beginning for the construction and built professionals.

I am sure we will probably all let out a huge sigh of relief in harmony. 2020 was a testing year for most citizens and businesses alike. It was a year of events that we never in our wildest dreams thought would happen.

I appeal to every reader to abide by the requirements to stay safe – wear masks covering both nose and mouth, maintain social distancing and wash hands frequently with soap and water and sanitise all surfaces, door and drawer handles, car steering wheel, smartphone or device, PC or laptop and any items brought into your homes. We must not let our guard down.

I trust you had a wonderful break with your families and returned ready and prepared to take on 2021 with

renewed vigour. Rise up to meet every challenge in a positive way, prepared for any eventuality this time around.

Seize every opportunity to learn about the amazing new lighting technologies and lighting control systems, lighting for the well-being of the occupants and more. If you do not know about them yet, make it your mission to find out – enrol for a course, attend webinars and make it an objective to be a leader rather than a follower, or someone still doing lighting the way it has been done for the last fifty years.

As I prepared myself for 2021, I realised that the continuous development of new lighting technologies is so exciting. I have experienced more new lighting technologies in the last decade than ever in the preceding four decades. Yes, I have been in lighting for 50 years ... I study continuously, attend webinars and meet with my friends, associates and colleagues in the field of lighting and lighting science from all

over the world via virtual meetings using a variety of platforms such as Microsoft Teams, Zoom, Click Meeting and Google Meet. The world has truly shrunk into the confines of our homes now. It has never been easier to stay in contact with each other. Of course, there is WhatsApp too – how could I have omitted it in the list?

### There is a new direction for lighting

Lighting for the well-being of the occupants of buildings and open spaces is receiving prominent attention with new lighting products and control systems emerging to suit the need. This means that it is now imperative to speak to property developers and built environment professionals about the need to ensure that lighting for the occupants' well-being is included in all designs. We have studied and used Human Centric Lighting which, to considerable extent, addressed the well-being of the occupants of buildings.

Now, there is renewed emphasis on the well-being and, in fact, new matrices to apply, measure and comply with.

During our webinar series this past year, a good friend and associate from London presented a fascinating topic titled Light Nutrition. The attendees were fascinated. We received many requests for the presentation to be repeated. For those who are interested and would like to attend, you are invited to contact me to receive invitations to the webinars. They are free of charge and CPD accredited.

I would also like to give an accolade to Crown Publications and, in particular, Gregg Cocking, the editor of both Sparks Electrical News and Lighting in Design magazines, for his appreciation of the importance of lighting and giving lighting great exposure in both publications.

Enquiries: [phil@bhalighting.co.za](mailto:phil@bhalighting.co.za)

## How to solve three common lighting issues

Lighting technology has come a long way in the last decade. LEDs are fast replacing conventional lighting, providing higher quality light, better energy efficiency, reduced heat, zero UV emissions and less maintenance. But growing adoption of LED comes with its own set of challenges.

### Retrofitting

The challenge: Outdated, underperforming lighting can become costly to replace and maintain, and many commercial customers are now choosing to upgrade to LED technology. Retrofitting LEDs in place of an existing lighting system can be a practical, less disruptive option than drilling new holes and fixings into a ceiling, as well as being between 50-75% cheaper than installing an entirely new system. Yet every space has a unique lighting requirement based on occupation and access to natural light. Finding LED solutions that fit these needs and existing optics and ceiling cut-outs can be a significant pain point for contractors.

The solution: It is recommended that contractors source luminaires that are specifically designed to meet the demands of retrofit applications. These should deliver the right amount of light using existing wiring points, cover or use existing fixings and holes, emit a better quality of light, remain flexible for different types of installations, and utilise the benefits of control.

### Automated commercial dimming

The challenge: Commercial dimming can be

complicated. When faced with complex control systems, low budgets or costly wireless controls, it is a headache for even the most experienced contractor. But with many homes and businesses looking to lower energy costs and comply to regulations, the demand for simple dimming is rapidly growing.

The solution: Simplicity is the key to successful LED dimming. Many contractors now favour 1-10 V LED dimming solutions for larger commercial projects. A mature and well-established technology, 1-10 V provides a reliable, eco-friendly, cost-effective and visually consistent dimming method, offering easy control via a simple two-wire system, no complex programming or commissioning, and more consistent dimming for high numbers of lamps routed on a single circuit.

### Flicker

The challenge: Installers cite flicker as their biggest challenge when installing LED, and the problem has caused so much uncertainty that many contractors have become resistant to installing the technology. Unfortunately, poor quality, low cost LED luminaires have tarnished the reputation of good, well-designed LEDs. The good news is that visible flicker can be easily avoided.

The solution: Use a well-established, reputable and trusted manufacturer of LED luminaires who values quality control, adopts flicker-free drivers as standard, and practices full testing processes.

Source: [www.redarrowtrading.com](http://www.redarrowtrading.com)

## Spazio Lighting's solar range



Sunlume



Astral



Angler



Polco



Cage



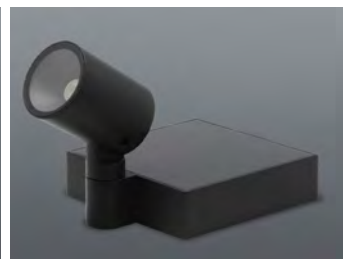
Vertigo



Fold



Rondo



Focus

Over the last few years, Spazio has identified the need in the South African market for good quality, efficient solar products to be introduced. Solar lighting has got many advantages, a few of the major advantages can include the following:

- Solar powered fittings are not dependent on the power grid for any source of energy. It comes complete with a rechargeable battery that gets charged by the sun during the day and then switches on at night. This means that solar power is environmentally friendly, green, clean renewable energy.
- Solar energy is very cost effective in that it does not contribute to your monthly electricity bill and seeing as there is no electrical wiring required, it makes for much easier installation.
- Spazio Lighting supplies a range of solar fittings with a strong focus on modern design. Its range consists of the following:
  - The Sunlume is a dimmable solar or power rechargeable table lantern with a die-cast aluminium body and clear polycarbonate diffuser. It gives off 3 W power and is warm white with an IP rating of 54 making it suitable for exterior use in inland conditions.
  - The Astral is a solar rechargeable wall fitting with an aluminium body and polycarbonate diffuser. This fitting includes a motion sensor which means that the fitting will brighten up when it picks up movement. This is a great way to conserve its power.
  - Angler and Polco are both solar powered wall fit-



Sunflood



Sunpack

tings made up of aluminium with polycarbonate diffusers. These fittings also include motion sensors and lithium-ion battery, it runs at 2.2 W with an IP rating of 54.

- The Cage and Vertigo are both solar powered bollards standing at 245 mm and 500 mm high respectively. They both are made up of aluminium with polycarbonate diffusers and include motion sensors. The Cage also includes a spike accessory.
- Similar to the Cage and Vertigo, the Fold and Rondo are both solar powered exterior bollards made up of die-cast aluminium and polycarbonate diffusers. They both also come complete with motion sensors.
- The Focus solar fitting is a garden spot complete with a spike to secure it to a soft exterior surface, for example, grass, ground, etc. It is made up of die-cast aluminium with a polycarbonate diffuser. This fitting does not have a motion sensor.
- The Sunflood and Sunpack are both wall mounted solar fittings made up of ABS. They include a Lithium-ion battery and motion sensor.

Enquiries: [www.spazio.co.za](http://www.spazio.co.za)







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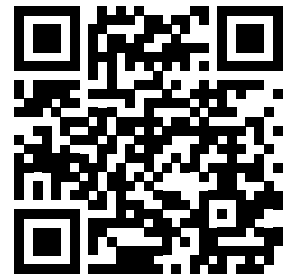
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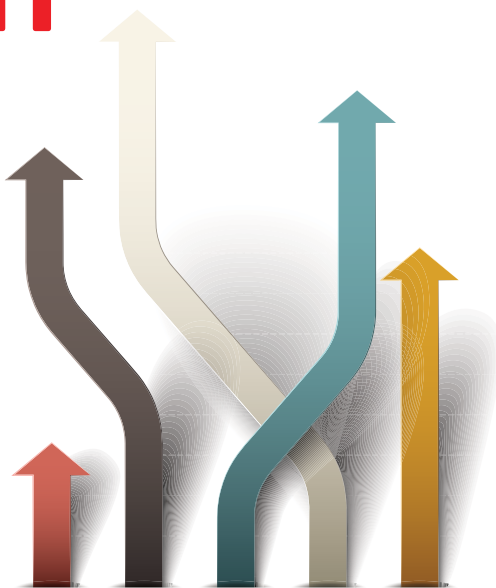
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## BRIGHT SPARK

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