

## THE REAL COST OF INADEQUATE INFRASTRUCTURE MAINTENANCE



Every South African citizen has a direct interest in the state of the country's infrastructure, including its roads and transport systems, hospitals and clinics, schools, water, sanitation, waste management, telecommunications and power utilities.

At its most elemental level the social contract between the state and its citizens requires the former to provide functioning public services and utilities to the latter. Functioning infrastructure is essential for a society to achieve sustainable development given that it provides access to economic opportunities and acts as a catalyst for generating economic growth – which by extension allows for job creation.

However, simply having infrastructure in place is only the start. Infrastructure are expensive assets, which, once developed, require ongoing investment and maintenance to ensure they function optimally for as long as possible.

There is a direct link between well-functioning infrastructure and a country's economy. This year South Africa's global competitiveness ranking dipped even lower, falling a further three notches to be ranked 59 out of 63 countries according to the latest World Competitiveness Yearbook, (WCY) compiled by Swiss-based Institute of Management Development (IMD). The IMD's ranking is an annual report that ranks the competitiveness of 63 selected counties and is regarded as the leading survey of competitiveness. By and large, those in the top 10 tend to have a well-maintained public infrastructure. As such, the infrastructure of a country should be regarded as a public asset.

The South African Institute of Civil Engineering (SAICE) has long rung the alarm bells over the state of SA's overall infrastructure. SAICE's 2017 Infrastructure Report Card for South Africa (the most recent survey), awarded the country's public infrastructure an overall grade of D+. A rating of D indicates that overall, the country's infrastructure is at risk of failure, is not coping with demand and is poorly maintained.

One of the lead researchers on the SAICE Infrastructure Report Card, Kevin Wall, has been quoted as saying that a combination of limited resources, public sector restructuring, inefficiency, skills shortages and less-than-optimum governance has led to extreme pressure on the condition of the public infrastructure asset base. He went on to say that, "We cannot afford to build only to permit decay. We want to move from a situation of 'patch and pray' to one of 'find and fix'. Maintenance is crucial."

The fact that public infrastructure is mostly at risk of failure, is not coping with demand and is poorly maintained makes it increasingly likely that the public will be subjected to severe inconvenience and even danger without prompt action, he added.

However, fixing infrastructure only after it has broken down detracts significantly from maintenance budgets. Instead, what is required is a proactive maintenance programme.

South Africans around the country are currently feeling the impact of this crumbling infrastructure as stage 4 load shedding is imposed. The reasons are not hard to ascertain: Eskom has made headlines in

recent years for all the wrong reasons including citing years of insufficient maintenance as a contributing explanation for load shedding.

The current energy crisis translates into massive losses in revenue for the country. In 2019 the CSIR revealed that the South African economy lost between R59-billion and R118-billion as a result of 530 hours of planned power cuts. Estimations are that load shedding at stage 2 costs the country's productive economy around R2-billion a day. There is no question that it imposes a significant risk to small businesses in particular and negatively impacts investor confidence. Coming on the back of the economic crisis resulting from the COVID-19 lockdown when businesses around the country are struggling for their very survival, this is a cost the economy can ill afford.

By Raymond Obermeyer, Managing Director, SEW-Eurodrive

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## Getting electrocuted

Some years back I was at Southern Cross Steel. We were commissioning a 42 kV vacuum bottle switch. To make sure the switch did not blow up when we turned it on, we high voltage tested it with an ac single phase high voltage tester. We connected the high voltage end of the tester and connected the earth to the sub-station earth bar. Halfway through the test I noticed that the earth bar connection seemed a bit loose so I fiddled with it and it came off the earth bar. Immediately I was raised to a voltage of 50 kV.

I heard a crack (I later found that it was a discharge across my safety boot sole) and I fell backwards onto the hard sub-station floor and cracked my hard hat. I was with Paul and he at first did not realise what had happened. My left arm was totally numb as if it were not connected to my body. Fortunately, I could breathe. I lay there and Paul

went for help. Nobody came but Paul came back with a blanket and covered me as I lay on the floor while he talked to me. After about 30 minutes my arm was less numb and then got slowly better.

It is a fact that all people who work on electrical stuff will, sooner or later, get an electric shock. Some will die. Most will survive. Some will be burned. The first rule of not getting an electric shock is to not work on live equipment. I have frequently seen people working on live equipment. Often it is to install a new circuit breaker. They do it because the client does not want to switch the power off and they accept this. I preach about this; do not work on live equipment. If the client will not let you switch it off, just refuse. The second rule is to earth the equipment you are working on. Battery jumper leads will help here. Do not rely on an earth you cannot see. When I worked in sub-stations in

the 1980s and 1990s many people I knew got burned or shocked. It only happened to me this once. In every instance yes, they had been working on live equipment or they had not used an earth.

Another factor is that of being in a hurry. It often happens that the client will let you turn the power off but only for a limited time. So, the electrical people are forced to work in a hurry and then they cut corners and make mistakes which injure them. My advice here is, "Do not be a pleaser". If the client asks how long a job will take, do not give them the answer they want to hear. Tell them the time you think it will take and add a bit to your estimate so the work can be done at a pace that is safe. If the client says, "I can't have the power off that long," then just shrug and say, "It is what it is."

So back to my experience. What did I and Paul do wrong? I was wrong to touch anything in the middle of the test. Paul was wrong to leave me and go for help – I could have got worse and had convulsions. We were both wrong because we did not 'take five to stay alive'. We should have had a five-minute meeting before we began the tests and discussed what could go wrong, how we would prevent it happening and what we would do if it happened. "Touch nothing during the test," would surely have come up, as would, "stay with the injured person until they are stable". What we did right was wearing safety boots and hard hats.

Finally, note this: my arm was totally numb. It could have been my chest and no breathing. If somebody is shocked and they stop breathing, do all you can: CPR, anything, until a doctor says it is no use. Do not assume the injured person is dead until a doctor says so. Stay safe.

## WearCheck moves to Westville



Condition monitoring specialists, WearCheck, recently relocated its head office and main laboratory from Pinetown to Westville, just outside Durban. The company's Durban transformer laboratory also moved to the same premises.

WearCheck's new laboratory and offices are at No. 4 The Terrace, Westway Office Park, Westville.

Managing director of WearCheck, Neil Robinson, says customers are benefiting as the new location is very accessible from the N3 freeway and is also closer to many customer operations, making sample drop-off even easier.

"The consolidation of head office staff, our oil analysis laboratory and the transformer oil laboratory and staff under one bespoke roof has streamlined our business and facilitates the quick and easy processing of samples," he said.

Formed more than 40 years ago in 1976, WearCheck moved into the Le Mans Place, Pinetown head office in 1992, from where it has operated for the past 28 years. WearCheck's 2017 acquisition of Transformer Chemistry Services – coupled with a growing workforce, expanded service offering and swelling customer base – created the need for a larger workspace, all at one address.

The WearCheck flag flies proudly over 17 world class laboratories in nine countries across Africa and beyond. The South African laboratories are in Johannesburg, Durban, Cape Town and Middelburg, while the international laboratories are in Zambia (at Lumwana mine and Kitwe), Mozambique, Ghana, Zimbabwe, DRC, Namibia, India, and Dubai.

"We look forward to welcoming our customers to our new state-of-the-art offices, where we combine cutting-edge technology with outstanding customer service as Africa's leading condition monitoring specialists," says Robinson.

WearCheck's contact details remain unchanged.

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PERSONALITY OF THE MONTH - JOSE CARREIRA

## A lifetime's worth of experience in panel building



Jose Carreira

**JOSE CARREIRA** from Ptytrade 228, a Boksburg-based electrical supplier, has in the past year brought a wealth of panel building knowledge to the company. With 45 years' experience in the trade, his expertise in the industry is unrivalled.

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

**JC:** For over 45 years now.

**Sparks: Where did you grow up?**

**JC:** I was born in Mozambique where I was raised and educated. I started in the electrical industry in Mozambique during my apprenticeship and left the country due to political problems. I emigrated to South Africa a month before Mozambique gained independence.

**Sparks: When and where did you start your career in the electrical industry?**

**JC:** I did my apprenticeship at the town council in Mozambique after attending technical school. In South Africa I worked for GEC on medium voltage panels and from there I moved to the construction industry where I worked for roughly four years. My first site was RBM in Richards Bay and later at Vaal River. I started in panel building when I joined Klockner Moeller and have been in the panel building industry ever since. About 11 years ago CBI bought out the local division of Klockner Moeller when the company had changed the name to Moeller Electric, where I carried out the same work, however, under the CBI name.

**Sparks: What changes have you seen in the industry over the years?**

**JC:** One of the biggest changes that has occurred, was the introduction of electronics. The relay logic technology, which was used for the control, was replaced by PLC systems with greater functionality. But relay technology is still in use today at a smaller scale. The other aspect was the introduction of VSDs and Soft Starters in the industry which offer greater energy efficiency and motor control.

**Sparks: What major projects have you been involved in over the years?**

**JC:** I oversaw the workshop, and lots of projects, mainly for the mining industry were done by Klockner Moeller. Perhaps one of the iconic ones, because of the tourist attraction, was the manufacture of the control panels and the motor control centres for Ushaka Marine World in Durban in around 2002. It was interesting to see the control for the numerous fish tanks. Initially we manufactured temporary panels to control the prefab fish tanks that were on the other side of the bay in a warehouse which belonged to the navy. Whilst the actual park was being built, the required fish for the marine park were being captured at sea and kept in these tanks and at the same time we were building the panels for the final installation as we know it today.

**Sparks: Have you ever had a mentor or somebody who has guided you in your career?**

**JC:** Yes, my father. I really looked up to him. A man of humble beginnings, with only primary school education and self-taught, went on to become

a qualified electrician in low and medium voltages. My brother and I both went on to have electrical careers because of him.

**Sparks: What do you see as the biggest challenges facing the industry?**

**JC:** The world economy is not that great, and the South African economy is worse; that alone is a huge challenge for anyone. At Ptytrade we want to position ourselves in small to medium projects at this point.

Another challenge is apprenticeships. When I started in the panel building industry, qualified electricians were employed on the shop floor, but for many years no one could afford to do that. Instead the workshops make use of panel wiremen who learn to read wiring diagrams, but they are not qualified electricians.

Another aspect of the panel building industry is that some companies offer MCCs which are not accredited/tested to the required specifications and use unapproved equipment. In this way we are not comparing apples with apples - companies that send panels for accreditation spend large sums of money, yet others skip this step.

**Sparks: What do you enjoy most about your job?**

**JC:** What I enjoy most is that there are never two projects which are alike. There is always something different, some new challenge, a new item that comes into the market. It is not a boring job.

**Sparks: Looking back at your career is there anything you would have done differently?**

**JC:** Given the opportunity, which at the time I never had, I would like to have gone to university and qualified as an engineer, but at the time I was not able to. South African life was not easy in the beginning; first because of the language barrier, and secondly, it was all about earning enough money to survive. Then I got married, had kids and I wouldn't change any of that.

**Sparks: Why would you advise people to look at a career in the electrical industry?**

**JC:** It is like any other career - you should have a passion for it. For me, it was seeing my father working and accompanying him on many jobs. Yet electricity is something the world needs. The world is changing to cleaner/renewable energy. Maybe, in the next 50 years, we will no longer have coal burning power stations, but we still need electrical energy. So, yes, it offers so much, and there are so many different aspects you can go into - medium voltage, low voltage - even if you are an IT inclined person, you can become involved.

**Sparks: Do you have any advice for electrical contractors and electrical engineers?**

**JC:** I would say, always do your best. To the electrical contractors out there, be quality driven and not profit driven. Keep the industry clean and honest.

**Sparks: Do you have a favourite quote?**

**JC:** I do not, but the only thing I say to my guys is that when assembling a panel or when you are wiring it, do your best. Build something you are proud to put your name on. Maybe in several years, you can come across that panel and you can say, "This panel came through my hands and it is still working, and I'm proud of what I've done". That is my advice; always do the best you can.

**Sparks: Is there anything on your bucket list which you would still like to do in your life?**

**JC:** I enjoy travelling. The bit I have travelled has been fantastic. I have watched a Formula 1 Grand Prix in the United Arab Emirates and also went to the observation point of the tallest building in the world, the Burj Khalifa in Dubai. I would love to visit Brazil during the Carnival time, as well as visit the Far East and Egypt because of the Pyramids.

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



### Re-imagine innovation with Citiq Prepaid

It is time to re-imagine innovation in utilities management. While this is not a sector often associated with innovation, new ideas are transforming how contractors and customers interact with their utilities. These ideas are changing the way solutions are developed and managed and they focus on building relationships with contractors that allow them to grow their businesses and change the ways in which they engage their customers.

"Innovation is extremely important", says Carel Scheepers, General Manager: Sales at Citiq Prepaid. "It's key to ensuring that companies like Citiq Prepaid are always paying attention to what customers want. For us, innovation sits at the core of our business and forms part of every decision we make and solution we create."

Citiq Prepaid is a market leader in South Africa because of its commitment to new and inventive solutions and ideas. One of these was the first of its kind in the country – the Citiq Installation Club (CIC). This loyalty programme specifically for electrical contractors, retailers and wholesalers, is designed to give back to the installer. Installers earn points for every meter installed. Once registered, installers get a point for every Citiq Prepaid meter they install, and they receive a R500 voucher to redeem at their selected wholesaler once they reach 20 points.

"Our loyalty club was designed with three core values in mind – easy to use, relevant to the market, and valuable to members", explains Scheepers. "Joining is easy, with minimal paperwork and admin, and earning rewards is as simple as installing a certain number of our prepaid sub-metering solutions. That's it."

In addition to the CIC, Citiq Prepaid has invested in high-quality prepaid sub-meters that assure longevity and sustainability. These are further supported by one



of the largest networks of recharge points in the country. Currently, Citiq Prepaid has the biggest national network of recharge points that include handy physical locations such as well-known retailers, as well as mobile and virtual recharge points for those who are concerned about their health during the pandemic.

"We allow for our users to recharge using their mobile devices and our online platform," says Scheepers. "It's extremely quick and easy, designed to make the purchasing of electricity tokens an experience, not an ordeal. We believe in providing exceptional customer service,

not just to the contractor, but to their customer as well. This forms part of our core innovation focus and informs our plans for the future.

"Our online platform has been developed to provide customers with access to full reporting capabilities and the ability to track and monitor their prepaid sub-metering investments", says Scheepers. "This service is of immense value to stakeholders who want to engage different markets and customers and want to provide solutions that add value throughout the supply chain. With us, your customers are looked after and so are you."

Over the next year, Citiq Prepaid is set to reveal some new and exciting developments in its utility management portfolio. These are aligned with changing market needs and deliver the kind of quality that electrical contractors have come to expect from the company. The future may be uncertain, the world may be facing a new normal, but Citiq Prepaid has not changed its commitment to the contractor and to ongoing innovation that matters.

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**ARB celebrates 40 years**

2020 marks the 40th year since ARB Electrical Wholesalers was founded by Alan Ronald Burke. Through his innovation, entrepreneurial spirit and unyielding passion for providing customers with exceptional service, the business has grown to one of the largest distributors of electrical products on the continent.

From humble beginnings, operating from a shipping container with a single employee and a bakkie, ARB Electrical Wholesalers' is now proudly represented nationally with a footprint of 21 branches across all nine provinces, a successful e-commerce platform and a staff complement of over 650 employees servicing Southern Africa.

The following milestones mark significant moments in a proud history; serving as reminders of what ARB has achieved through passion and hard work.

**1980:** ARB Founded by Alan Ronald Burke from a shipping container in Richards Bay.

**1981:** Operations move from the shipping container with Richards Bay branch opening its doors.

**1988:** Durban branch opens at 5 Joyner Road, Prospecton.

**2000:** Pietermaritzburg branch opened.

**2001:** The head office relocated to a new site in Prospecton, effectively expanding the facility six times in comparison to its previous location.

**2002-2004:** ARB made inroads across SA, establishing branches in Johannesburg (2002), Cape Town (2003), and East London (2004).

**2005:** Recognising the importance of empowerment as a strategic business imperative, ARB Holdings sells a 26% stake in its key-operating subsidiary, ARB Electrical Wholesalers to BBBEE partners Batsomi Power (Pty) Ltd.

**2006:** JHB branch relocates to 13 000m<sup>2</sup> premises in Alrode to service provincial & international markets.

**2007:** ARB Holdings acquires the operations of Xact Business Solutions, which was then incorporated into wholly owned subsidiary, ARB IT Solutions (Pty) Ltd. In November of the same year, ARB's trajectory of growth culminated in a listing on the 'Electronic and Electrical' sector of the Main Board of the JSE, celebrating 28 years of commitment and growth.

**2008:** Nelspruit branch opens.

**2009:** Cape Town branch relocates to newly developed 7 300m<sup>2</sup> group owned premises in Montague Gardens, providing additional space for greater stock holding to service the Cape Town market.

**2010:** Polokwane branch opens. The acquisition of Paragon Electrical, a leading group of five electrical wholesaling operations across the Pretoria and Centurion areas, represented ARB's first acquisition since its JSE listing in late 2007.

**2011:** ARB Connect launched. A chain of smaller, centrally located retail-styled stores with the opening of its first two stores in Bellville, Western Cape, and Durban North, KZN.

**2012:** ARB Holdings acquires a 60% controlling interest in Eurolux (Pty) Limited, a leading importer and distributor of light fittings, lamps, and ancillary electrical products. In July, ARB EW acquired 100% of the issued share capital of Industrial Cable Suppliers (Pty) Ltd.

**2013:** ARB Electrical Wholesalers acquires 100% of Elektro Vroomen, with branches in Bloemfontein and Kathu. Following this acquisition, ARB is represented in all nine provinces in South Africa. CED was incorporated to house the exclusive CHINT distribution agreement.

**2014:** Relocation of the Nelspruit branch to newly developed 4 700 m<sup>2</sup> premises in Riverside Industrial Park.

**2015:** In an effort to provide a more convenient means of purchasing electrical supplies, ARB Electrical Wholesalers launches an E-commerce solution. ARB Electrical Wholesalers launches its new Quick Pull concept which allows customers the opportunity to grab & go. The new flag concept store in Silver Lakes, Pretoria opens its doors in December 2015.

**2016:** Diep River branch opens.

**2017:** East London branch moves to a larger location.

**2018:** ARB broke ground and built new distribution centre at Lords View in JHB

**2019:** Gauteng branch relocates into 44 000 m<sup>2</sup> purpose-built Distribution Centre at Lords View in Johannesburg.

**2020:** ARB Celebrates 40<sup>th</sup> year in business.

Over the years, the company has enjoyed the support of many customers and suppliers who have helped ARB to where it is today.

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## Tough times demonstrate resilience – as does preventive maintenance



With economic uncertainty levels reaching an all-time high, it is necessary to find creative and resilient ways to reduce budgets while boosting the bottom line. Preventive maintenance is often one of the most tempting to trim. However, doing so could end up costing a business significantly more in the long term.

Preventive maintenance is often considered an unnecessary operational expenditure that incurs significant costs, with many businesses choosing to focus on emergency maintenance when it arises rather than investing in ways to avoid it. While this is common practice in certain businesses, preventive maintenance can save both time and money by avoiding expensive down-time and ensuring that operations run smoothly.

Lessons learned should be shared, so it's important to realise that implementing preventive maintenance is not about fixing problems that already exist, but rather about focusing on preventing them from happening at all, or detecting them early at the very least, before they cause an actual fault.

Good maintenance proves its worth on a day-to-day basis, and

preventive maintenance can help keep costs down in a number of ways.

**Reduce unplanned equipment downtime**

- Equipment downtime is not just frustrating, it's also extremely expensive. Every time equipment breaks down, it causes business process and production interruption, resulting in lost money and wasted time. Emergency repairs may also be delayed if parts or technicians are not immediately available.

**Increase operational efficiency**

- With a preventive maintenance regime in place, equipment is always running in optimal condition. This means that it uses less electricity and other fuel sources, reducing running costs and the businesses impact on the environment.

**Minimise the risk of costly reactive maintenance**

- Reactive maintenance addresses problems as they arise. Unplanned breakdowns can cause serious production losses and

potentially even workplace health and safety issues. Production time lost to maintenance or workplace stoppages should be avoided as far as possible.

**Avoid unexpected expenses**

- Preventive maintenance costs are planned and budgeted for (rather than an unpleasant surprise when budgets are already under pressure), and can be done by well-trained technicians on site. In many circumstances, preventive maintenance costs are less than the outright expense of repairing a massive machinery breakage that may also require the input of experts, who possibly have to travel from far afield.

**Extend equipment lifespan**

- Preventive maintenance will also increase equipment lifespan. When everything is up to date and working properly, equipment lifespan is maximised, increasing long-term return on investment.

Preventive maintenance can be one of the most cost-effective measures a business can take to ensure the ongoing health and optimal performance of its critical equipment, and its bottom line by recognising and repairing potential problems before they become significant and costly issues, and minimising the risk and costs of unplanned downtime.

Eaton's team of experienced service engineers have tried and tested preventive maintenance protocols in place that have proven to prevent faults that would have otherwise had catastrophic consequences for its customers' business operations. Doing so prevents business interruption, halts to production, and injury to workers, as well as enhancing their overall return on investment by extending the lifespan of critical power equipment.

Eaton has been in Africa since 1927, with offices in South Africa, Kenya, Ivory Coast, Morocco and Nigeria, with 200k ft<sup>2</sup> of manufacturing space located in South Africa and Morocco. A certified BBBEE Level 1 contributor in South Africa, Eaton offers a broad portfolio supplemented by "made for Africa" products and solutions. Eaton has over 700 employees and numerous distributors across the region, allowing it the opportunity to help its customers grow and provide sustainable economic benefits to the communities in which it operates. For more information visit

By Jaco Richards, PD Service and Business Development Manager at Eaton South Africa

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## Ptytrade 228, your electrical supply partner, branches out into motor control centres



In this energy intensive era, the installation, on-site modification, operation, and maintenance of electrical power and distribution assets are critically important. As an independent, family-run business with over 60 years' collective experience, Ptytrade 228 (Pty) Ltd combine ability, expertise, and associated product knowledge to provide the best possible solutions.

"By minimising your downtime, though supplying quality products at competitive prices, we help increase your bottom line," explains Ptytrade 228 (Pty) Ltd MD Brendon Chalmers. "The company was started in November of 2004, and our bread and butter items were the 'brown box' electrical consumable range of products, however, over time we have expanded our offering to include value added products. With Jose Carreira – ex Klockner Moeller and CBI – on board heading up the MCC division, we are looking at growing that side of the business." The company offers electrical boards from small isolator stations

to 4000 amp 600 V motor control centres.

Carreira points out that a quick turnaround time is what separates Ptytrade 228 from its competitors. "The two aspects which we focus on in our factory, are the quality of the product, and the turnaround time," he says. "Being a smaller company, we are able to give personalised attention to each and every job thus ensuring a faster turnaround time."

The company's personal attention is a definite drawcard. "We offer the same level of service and attention to those who come to us with a small panel as we do with the customer who is paying millions of Rands. Both are equally important to us," notes Carreira. The state-of-the-art factory is situated in Boksburg and overseen by Carreira. All control panels are built by qualified panel wiremen to the highest standards in panel wiring and assembly. The company focuses on expert design and manufacture, along with ease of use and maintain-



## Zest WEG builds, equips custom E-house for Sasol

Zest WEG is leveraging its range of capabilities and local manufacturing facilities to supply a complete low-voltage substation to Sasol's Prillan plant in Sasolburg.

The custom-designed solution includes a double-storey E-house, transformers, variable speed drive (VSD) panels and distribution boards, according to Lukas Barnard, oil and gas specialist in Zest WEG's business development team. The specialised E-house has a number of fit-for-purpose features.

"The outside wall is manufactured using 306 stainless steel sheets to deal with the highly corrosive environment," Barnard says. "The E-house is designed with a secondary pitch roof and will have a two-hour fire rating on the structural integrity of the building. It is equipped with a complete heating, ventilation and air conditioning (HVAC) system."

To suit the available footprint at the plant, the E-house comprises two buildings. The first structure – measuring 20 m by 8,5 m – is elevated to a height of 3 m above ground level. Adjacent to it is the second structure, a double-storey design with 7 m by 4,2 m of floorspace. The two will be attached using platforms and staircases.

Drawing on the capability of Zest WEG's local manufacturing facilities, the E-house includes various VSD panels, distribution boards and free-standing panels. There are also four 1,6 MVA oil-type distribution transformers produced at the company's transformer manufacturing facility in Wadeville.

"After all the equipment is installed in the E-house, full functional testing will be carried out at Zest WEG's Heidelberg facility," Barnard says. "The building was designed to split into four sections for transport purposes. These four sections, with all the installed equipment, will weigh close to 160 tonnes, and will be rigged into place on site with a 500 tonne mobile crane."

Barnard says that Zest WEG worked in close collaboration with Proconics on the project. "Procon-

ics is applying its expertise in electrical engineering, design and site installation, as well as electric and instrumentation interfacing and civil engineering works," he says. "This is particularly important as the project involves a live changeover between the old and new substation; the substation also interfaces with an ongoing process."

Barnard highlights this kind of collaborative synergy as the basis for providing the client with the best possible solution – ensuring optimal performance and reliability.

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



Motors | Automation | Transmission & Distribution | Energy Solutions | Electrical Construction



# 40 YEARS OF INNOVATION in Africa



Zest WEG, a subsidiary of leading Brazilian motor and controls manufacturer WEG, has a strong commitment to contributing to the development of the African region, and has been servicing the continent for 40 years, with a strong emphasis on innovation.



**ZEST**  
WEG Group

0861 009378 | [www.zestweg.com](http://www.zestweg.com) | [info@zestweg.com](mailto:info@zestweg.com)

ability. "To give you peace-of-mind, our electrical panels come with a personal and quality guarantee; and are backed by our engineers and sales departments. 24/7 availability means you do not have to endure costly delays," he says.

According to Carreira, containerised MCC solutions are growing in popularity. "Through my professional life, I have done numerous containers, and at Ptytrade 228 we are able to customise them to the customer's specifications. They are proving very popular, especially in the mining industry where the life of a mine may be 10 years. Instead of installing a bunkered substation, container substations are a great option. Once the mine is no longer in operation, the MCC, which is usable, can be relocated to the next site," he says.

### A growing division

"Jose has been in the industry for many years, he is a well-known, respected gentleman in the industry" says Chalmers, "I think it is a feather in our cap to have a man of Jose's calibre in our business. Currently MCCs are a small portion of what we do, however, Jose has been brought in to grow our output."

Ptytrade 228 was built around a simple premise; giving the customer what they want when they want it. "I like to try and buy well and sell well. I enjoy trading on relationships built over 30 years – I understand my customers and they understand me" he says. Chalmers notes that post-lockdown, business has been far better than initially anticipated, yet there are still massive industry challenges. "I am confident that Jose and his team will ensure the continued growth of our company."

Despite the current challenges, with a focus on the customer, Ptytrade 228, with its dedicated staff, is set to – along with its MCC division – grow exponentially while having fun achieving it.

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

## MANUFACTURERS

ABB South Africa  
Aberdare Cables  
ACTOM Protection and Control  
Alvern Cables  
CCG Cable Terminations  
Clearline Protection Systems  
Crabtree South Africa  
Danfoss  
Dehn + Söhne  
Dry Ice International  
HellermannTyton  
Helukabel  
Lapp Group  
Legrand  
Matelec  
O-Line  
Phoenix Contact  
Power Process Systems  
Ptytrade 228  
Radiant Group  
Sabelco Electrical Industries  
Schneider Electric South Africa  
South Ocean Electrical Wire Co  
Stone Stamcor  
Superlume  
Switchboard Manufacturers  
Three-D Agencies  
Tilt-Tech  
Voltex  
Waco  
WearCheck  
WEG

## DISTRIBUTORS

ACDC Dynamics  
ACTOM Electrical Products  
ARB Electrical Wholesalers  
Atlas Group  
Bellco  
Brother International South Africa  
Cabstrut  
CBI-electric : low voltage  
Central Support Systems  
Clearline Protection Systems  
Crabtree South Africa  
Dehn Africa  
DRH Components  
Dry Ice International  
Electrahertz  
HellermannTyton  
Invirotel  
Khanyisa Electrical Suppliers  
Lapp Group  
Magnet  
Major Tech  
Matelec  
MCE Electric  
Phambili Interface  
Phoenix Contact  
Power Process Systems  
Ptytrade 228  
Radiant Group  
R&C Instrumentation  
Sabelco Electrical Industries  
Siba Fuses  
Superlume  
Three-D Agencies  
Tilt-Tech  
Versalec  
Voltex  
Voltex LSis  
Waco  
Zap Electrical Wholesalers  
Zest WEG Group

## ONLINE DISTRIBUTORS

HellermannTyton  
Siba Fuses  
Voltex online shop

## CONTACTS

ABB South Africa  
Customer contact centre  
Aberdare Cables  
Jyoshite Dhunes  
ACDC Dynamics  
Elmari Erasmus/Dirk Klynsmith  
ACTOM Electrical Products  
Warren Filippa  
ACTOM Protection & Control  
Faisal Hoosen  
Alvern Cables  
Stephen Liasides  
ARB Electrical Wholesalers  
Sales  
Atlas Group  
Annie Storar  
Bellco  
Shiraj Wentzel  
Brother International South Africa  
Munna Desai  
Cabstrut  
Theon Steyn  
CBI-electric: low voltage  
Jaco Viljoen  
CCG Cable Terminations  
Arthur Cameron  
Central Support Systems  
Faruk Cassim  
Clearline Protection Systems  
Tanya/Rakesh

## CONTACTS

Crabtree South Africa  
Sales  
Danfoss  
Stephen Brown  
Dehn Africa  
Kirk Risch  
DRH Components  
Rob Hare  
Dry Ice International  
Johan van den Bergh  
Electrahertz  
Frank Proude (Pta) Peet Lourens (Jhb)  
HellermannTyton  
Andrew Edwards  
Helukabel  
Doug Gunnewegh  
Invirotel  
Modishane Sebona  
Khanyisa Electrical Suppliers  
Dominic Kalil  
Lapp Group  
Sales  
Legrand  
Johan Bosch  
Magnet  
Jenine Pillay  
Major Tech  
Werner Grobbelaar  
Matelec  
Yann Leclézio  
MCE Electric  
Sales  
O-Line  
Sales  
Phambili Interface  
Steve Lea  
Phoenix Contact  
Carl Coetzer

## Power Process Systems

Sales  
Ptytrade 228  
Brendon Chalmers  
Radiant Group  
Alfred Weldon  
R&C Instrumentation  
Gerhard Otto  
Sabelco Electrical Industries  
Marc Moreau  
Schneider Electric South Africa  
Sales  
Siba Fuses  
Hi Hassen  
South Ocean Electrical Wire Co  
Yasmin Mahomed  
Stone Stamcor  
Mark Talbot  
Superlume  
Willie Garbers  
Switchboard Manufacturers  
Josh Berman  
Three-D Agencies  
Mark Jenkins  
Tilt-Tech  
Linda Hanekom  
Versalec  
Roland Fry  
Voltex  
Lizel de Jager  
Voltex LSis  
Rose Schulz  
Waco  
Jaco Coetzee  
WearCheck  
Kay Meyrick  
Zap Electrical Wholesalers  
Sales  
Zest WEG Group  
Sales

## DRIVES AND SOFT STARTERS

ABB South Africa  
Full range of drives and soft starters  
ACDC Dynamics  
Full range of Vacon VSDs and Aucom soft starters  
ACTOM Protection & Control  
VSD panels; soft-starters  
ARB Electrical Wholesalers  
Full range of drives/soft starters  
Bellco  
Full range of drives/soft starters  
Danfoss  
Danfoss and Vacon variable speed drives; Danfoss soft starters  
Electrahertz  
Full range of drives and soft starters  
Khanyisa Electrical Suppliers  
Full range of drives and soft starters  
Magnet  
Range of drives and soft starters  
MCE Electric  
Full range of Hyundai VSDs  
Power Process Systems  
Full range of drives/soft starters  
Ptytrade 228  
Full range of drives/soft starters  
Voltex  
Full range of drives/soft starters  
Zap Electrical Wholesalers  
Full range of drives/soft starters  
Zest WEG Group  
Full range of low voltage and medium voltage drives and soft starters

## ARMoured/SHIELDED CABLES

Aberdare Cables  
Bells & Mains  
ACTOM Electrical Products  
Armoured and shielded cables  
ARB Electrical Wholesalers  
Full range of armoured/shielded cables  
Atlas Group  
Full range of armoured/shielded cables  
Bellco  
Full range of armoured/shielded cables  
Electrahertz  
Full range of armoured/shielded cables  
HellermannTyton  
A variety of wire strippers and cutters: PVST46 – PV stripping tool; T-Type – Wire Stripper and Cutter; ASS103 – Cable stripper; PTS4 – Wire stripper and cutter; YC1607A – Wire stripper; 45092 – Stripmaster

## ARMoured/SHIELDED CABLES

Helukabel  
Full range of armoured and shielded cables  
Khanyisa Electrical Suppliers  
Full range of armoured/shielded cables  
Lapp Group  
Unitrone data communication cables; Olflex power and control cables  
Magnet  
Range of armoured and shielded cables  
Power Process Systems  
Full range of armoured and shielded cables  
Ptytrade 228  
Full range of armoured/shielded cables  
South Ocean Electrical Wire Co  
Full range of armoured and shielded cables  
Voltex  
Full range of armoured and shielded cables  
Zap Electrical Wholesalers  
Full range of armoured and shielded cables

## CABLE SUPPORT SYSTEMS

ABB South Africa  
Full range of cable support systems  
ACDC Dynamics  
Wide range of Gewiss and Ardic cable support systems  
ACTOM Electrical Products  
Cable support systems to suit all installations  
ARB Electrical Wholesalers  
Full range of cable support systems  
Atlas Group  
Full range of cable support systems  
Bellco  
Full range of cable support systems  
Cabstrut  
Full range of cable support systems  
Central Support Systems  
Full range of cable support systems  
Electrahertz  
Full range of cable support systems  
HellermannTyton  
Cable securing which includes a range of slotted and solid trucking  
Khanyisa Electrical Suppliers  
Full range of cable support systems  
Magnet  
Range of cable support systems  
Matelec  
Cable clips; saddles (plastic and galvanized)  
O-Line  
Full range of cable support systems  
Phoenix Contact  
Trunking  
Power Process Systems  
Full range of cable support systems  
Ptytrade 228  
Full range of cable support systems  
Sabelco Electrical Industries  
Full range of cable support systems  
Three-D Agencies  
Full range of cable support systems  
Voltex  
Cabstrut range of cable support systems  
Zap Electrical Wholesalers  
Full range of cable support systems

## GEARBOXES FOR MOTOR APPLICATIONS

ARB Electrical Wholesalers  
Full range of gearboxes for motor applications  
Bellco  
Full range of gearboxes for motor applications  
Dry Ice International  
Cleaning of motors and gearboxes with dry ice blasting  
Electrahertz  
Full range of gearboxes for motor applications  
Magnet  
Range of gearboxes for motor applications  
Stone Stamcor  
Hydro-Mec European quality gearboxes  
Ptytrade 228  
Full range of gearboxes for motor applications  
R&C Instrumentation  
Vibration switches and transmitters  
Voltex  
Full range of gearboxes for motor applications

## CONTACTORS, BREAKERS, RELAYS

ABB South Africa  
Full range of contactors, breakers, relays  
ACDC Dynamics  
Covering all low to medium voltage needs from brands including TC, C&S, Gewiss and Teraskai  
ACTOM Electrical Products  
Complete range of low voltage circuit breakers, isolators, earth leakage devices and wiring accessories  
ACTOM Protection & Control  
TAIAN contactors/relays  
ARB Electrical Wholesalers  
Full range of low voltage circuit breakers, isolators, earth leakage devices and wiring accessories  
CBI-electric: low voltage  
Mini contactor relays up to 12 A; contactors and contactor relays three- and four-pole; AC-1 contactors up to 2 600 A; AC-3 contactors up to 1 600 A; overload relays, bi-metal up to 630 A; electronic units up to 1 600 A  
Magnet  
Range of contactors, breakers, relays  
DRH Components  
Earth leakage relays  
Dry Ice International  
Cleaning of electrical apparatus with dry ice blasting  
Electrahertz  
Full range of contactors, breakers, relays  
Khanyisa Electrical Suppliers  
Full range of contactors, breakers, relays  
Legrand  
Full range of MCBs, MCCBs, ACBs and contactors  
Major Tech  
Comprehensive range of miniature circuit breakers 3 kA MCB series; 6 kA MCB series; 6 kA MCB series, earth leakage and isolator series  
MCE Electric  
MCE Contactors – Full Range, MCE Relays – Full Range, Onesto Circuit Breakers – Full Range, Schenker Circuit Breakers – Full Range  
Phoenix Contact  
Relays, solid state motor starter  
Power Process Systems  
Full range of contactors, breakers and relays  
Ptytrade 228  
Full range of contactors, breakers and relays  
R&C Instrumentation  
Full system power management local and via Internet

## CONTACTORS, BREAKERS, RELAYS

Schneider Electric South Africa  
Full range of contactors, breakers and relays  
Switchboard Manufacturers  
LV distribution boards that contain contactors, breakers, relays, changeovers and can be used to supply power to motors and motor controllers  
Voltex  
Full range of contactors, breakers, relays  
Voltex LSis  
Full range of contactors, breakers, relays  
Zap Electrical Wholesalers  
Full range of contactors, breakers, relays  
Zest WEG Group  
Full range of contactors; breakers; relays

## MOTOR PROTECTION AND SURGE PROTECTION

ABB South Africa  
Full range of motor and surge protection  
ACDC Dynamics  
Extensive range of motor and surge protection products  
ACTOM Protection & Control  
Motor protection relays  
ARB Electrical Wholesalers  
Full range of motor protection/surge protection  
Atlas Group  
Full range of motor and surge protection  
Bellco  
Full range of motor and surge protection  
CBI-electric: low voltage  
Motor protection standard and electronic up to 65 A; DC protection for solar applications up to 63 A  
Clearline Protection Systems  
Full range of motor and surge protection  
Dehn Africa  
Surge and lighting protection  
DRH Components  
Motor protection relays  
Electrahertz  
Full range of motor and surge protection  
HellermannTyton  
Surge plugs: TSPIA and TSPIAF – High surge handling capabilities  
Khanyisa Electrical Suppliers  
Full range of motor and surge protection  
Legrand  
Full range of MCBs, MCCBs, ACBs and Surge Arrestors  
Magnet  
Motor and surge protection  
MCE Electric  
Onesto and Schenker Surge Arrestors – Full Range  
Phambili Interface  
Full range of motor and surge protection  
Phoenix Contact  
Surge protection  
Power Process Systems  
Full range of motor and surge protection  
Ptytrade 228  
Full range of motor and surge protection  
Schneider Electric South Africa  
Acti9 DIN-mounted iPF Type 2 or 3 LV surge arresters; Acti9 DIN-mounted iPRD Type 2 or 3 LV withdrawable surge arresters; Tesys power control and switching contactors, Tesys T motor management system  
Siba Fuses  
Full range of fuses up to 12 kV for motor protection  
Switchboard Manufacturers  
Power factor correction boards to reduce electricity bills as a result of high reactive charges  
Voltex  
Full range of motor and surge protection  
Voltex LSis  
Full range of motor and surge protection  
Waco  
Range of motor and surge protection  
WearCheck  
Condition monitoring specialists  
Zest WEG Group  
Full range of motor protection and surge protection

## CABLE MANAGEMENT ACCESSORIES

ABB South Africa  
Full range of cable management accessories  
ACDC Dynamics  
Full range of wiring accessories  
ACTOM Electrical Products  
Full range of accessories for all types of installations  
ARB Electrical Wholesalers  
Full range of cable management accessories  
Atlas Group  
Full range of cable management accessories  
Bellco  
Full range of cable management accessories  
Brother International South Africa  
Full range of cable management accessories  
Cabstrut  
Full range of cable management accessories  
Central Support Systems  
Full range of cable management accessories  
Crabtree South Africa  
Full range of cable management accessories  
Electrahertz  
Full range of cable management accessories  
HellermannTyton  
Full range of cables ties, cable identification, protective sleeves and labels including printers  
Helukabel  
Helukabel glands, connectors, cable protection  
Khanyisa Electrical Suppliers  
Full range of cable management accessories  
Lapp Group  
Cable accessories including UV resistant cable ties, steel cable ties and twist tail cable ties; Fleximark cable marking products  
Legrand  
Full range of cable management systems  
Magnet  
Cable management accessories  
Matelec  
Cable glands  
MCE Electric  
MCE – Slotted, Solid Wall and Floor Trunking; Canal Plast – Slotted Trunking and Flexible Wiring Ducts; MCE – Cable Joint Kits  
O-Line  
Full range of cable management systems  
Phambili Interface  
Full range of cable management accessories  
Phoenix Contact  
Labels, marking systems  
Power Process Systems  
Full range of cable management accessories



## CABLE MANAGEMENT ACCESSORIES

**Ptytrade 228**  
Full range of cable management accessories

**Radiant Group**  
Full range of cable management accessories

**Three-D Agencies**  
Full range of cable management accessories

**Voltex**  
Full range of cable management accessories

**Zap Electrical Wholesalers**  
Full range of cable management accessories

## DISPLAYS

**ACDC Dynamics**  
Comprehensive range of displays, energy meters, digital multimeters, network analysers and panel meters – digital and analogue

**ARB Electrical Wholesalers**  
Full range of displays

**Electrahertz**  
Full range of displays

**HellermannTyton**  
T8051 – Process Calibrator

**Invirotel**  
Full range of displays

**Khanyisa Electrical Suppliers**  
Full range of displays

**Legrand**  
Full range of metering equipment

**Magnet**  
Range of displays

**Power Process Systems**  
Full range of displays

**Phoenix Contact**  
Energy meters

**Ptytrade 228**  
Full range of displays

**Radiant**  
Full range of displays (meter reading, etc)

**Voltex**  
Full range of displays

**Zest WEG Group**  
Electronic PFO1 range of power factor meters; MMW range of power meters

## FANS FOR MOTOR APPLICATIONS

**ACDC Dynamics**  
Extensive range of fans – QErre and others

**ARB Electrical Wholesalers**  
Full range of fans for motor applications

**Bellco**  
Full range of fans for motor applications

**Electrahertz**  
Full range of fans for motor applications

**Khanyisa Electrical Suppliers**  
Full range of fans for motor applications

**Magnet**  
Fans for motor applications

**Power Process Systems**  
Fans for motor applications

**Ptytrade 228**  
Full range of fans for motor applications

**Sabelco Electrical Industries**  
Full range of fans for motor applications

## WIRING AND WIRING ACCESSORIES FOR MOTOR APPLICATIONS

**ABB South Africa**  
Full range of wiring and wiring accessories for motor applications

**Aberdare Cables**  
Housewire/Panel flex (wiring inside the terminal box)

**ACTOM Protection & Control**  
Range of wiring and wiring accessories for motor applications

**Alvern Cables**  
Permotrail; Permo power; ALVK R-VK trailing cable; H07; Singleflex

**ARB Electrical Wholesalers**  
Full range of wiring and wiring accessories for motor applications

**Bellco**  
Full range of wiring and wiring accessories for motor applications

**Electrahertz**  
Full range of wiring and wiring accessories for motor applications

**HellermannTyton**  
Full range of wiring accessories including tools

**Helukabel**  
Full range of wiring and wiring accessories for motor applications

**Khanyisa Electrical Suppliers**  
Full range of wiring accessories for motor applications

**Legrand**  
Full range of wiring accessories for motor applications

**Magnet**  
Range of wiring accessories for motor applications

**Matelec**  
Fan capacitors

**MCE Electric**  
Full range of MCE Industrial Plugs and Sockets; full range of Onesto Industrial Plugs and Sockets

**Phambili Interface**  
Full range of wiring accessories for motor applications

**Phoenix Contact**  
Marking systems

**Power Process Systems**  
Full range of wiring and wiring accessories

**Ptytrade 228**  
Full range of wiring and wiring accessories for motor applications

**R&C Instrumentation**  
Infrared inspection windows

**Stone Stamcor**  
Cutters, strippers and crimping tools

**Three-D Agencies**  
Full range of wiring accessories for motor applications

**Voltex**  
Full range of wiring and wiring accessories

**Voltex LSis**  
Full range of wiring and wiring accessories

**Waco**  
Full range of wiring and wiring accessories

## CABLE GLANDS, LUGS, AND FERRULES

**ACDC Dynamics**  
Full range of cable glands, lugs, ferrules

**ACTOM Electrical Products**  
Full range of termination and jointing requirements

**ARB Electrical Wholesalers**  
Full range of cable glands, lugs, ferrules

**Atlas Group**  
Full range of cable glands, lugs, ferrules

**Bellco**  
Full range of cable glands, lugs, ferrules

## CABLE GLANDS, LUGS, AND FERRULES

**CCG Cable Terminations**  
Range of cable glands, lugs, ferrules

**Electrahertz**  
Full range of cable glands, lugs, ferrules

**HellermannTyton**  
Full range of cable glands, lugs and ferrules as well as a large range of crimpers (hydraulic and manual)

**Helukabel**  
Full range of cable glands, lugs, ferrules

**Khanyisa Electrical Suppliers**  
Full range of cable glands, lugs, ferrules

**Lapp Group**  
Skintop cable glands

**Legrand**  
IP68 cable glands; Cabstop cable glands

**Magnet**  
Range of cable glands, lugs, ferrules

**Matelec**  
Cable glands (no.1 and no.2)

**O-Line**  
Full range of cable glands, lugs, ferrules

**Phoenix Contact**  
Full range of cable glands, lugs, ferrules

**Power Process Systems**  
Full range of cable glands

**Ptytrade 228**  
Full range of cable glands, lugs, ferrules

**Stone Stamcor**  
Full range of copper, aluminium, bi-metallic compression lugs and ferrules; 11 kV and 36 kV mechanical lugs and ferrules

**Superlume**  
A wide range of IP65 rated connection cable glands

**Three-D Agencies**  
Full range of cable glands, lugs & ferrules

**Voltex**  
Full range of cable glands, lugs & ferrules

**Waco**  
Full range of cable glands, lugs & ferrules

**Zap Electrical Wholesalers**  
Full range of cable glands, lugs, ferrules

## FLAMEPROOF

**Aberdare Cables**  
Flamosafe

**ACDC Dynamics**  
Full range of flameproof products; lighting enclosures, limit switches, plugs, sockets, pushbuttons, fans, sirens, basons and accessories

**ARB Electrical Wholesalers**  
Full range of flameproof products

**Atlas Group**  
Full range of flameproof products

**Bellco**  
Full range of flameproof products

**Electrahertz**  
Full range of flameproof products

**Helukabel**  
Full range of flameproof products

**Khanyisa Electrical Suppliers**  
Full range of flameproof products

**Magnet**  
Range of flameproof products

**Phambili Interface**  
Full range of flameproof products

**Ptytrade 228**  
Full range of flameproof products

**R&C Instrumentation**  
Ex-certified infrared thermometers

**Superlume**  
A wide range of zone rated light fixtures

**Voltex**  
Full range of flameproof products

**Waco**  
Full range of flameproof products

**Zest WEG Group**  
Full range of flameproof products

## CONTROLS FOR MOTOR APPLICATIONS

**ABB South Africa**  
Full range of controls for motor applications

**ACDC Dynamics**  
Full range of controls for motor applications

**ACTOM Protection & Control**  
Control desks; control panels; selector switches

**ARB Electrical Wholesalers**  
Full range of controls for motor applications

**Bellco**  
Full range of controls for motor applications

**CBI-electric: low voltage**  
RMQ pilot devices (16 – 22.5 mm); emergency stop push buttons illuminated and non-illuminated; FAK foot and palm switches; signal towers; full range of push buttons including key operated, illuminated, LED, activators and accessories

**Electrahertz**  
Full range of controls for motor applications

**HellermannTyton**  
Panel plate labels (thermal transfer); Helatag1221 – Silver, Helatag 1220 – White

**Khanyisa Electrical Suppliers**  
Full range of controls for motor applications

**Legrand**  
Complete range of control and signaling units; industrial sockets and plugs

**Magnet**  
Range of controls for motor applications

**Matelec**  
5-speed wall controllers

**MCE Electric**  
Full range of MCE Pushbuttons, Control Station and Pendant Controls

**Phambili Interface**  
Full range of controls for motor applications

**Power Process Systems**  
Full range of controls for motor applications

**Ptytrade 228**  
Full range of controls for motor applications

**Tilt-Tech**  
Specialised potentiometers; inclinometers; digital levels

**Voltex**  
Full range of controls for motor applications

**Voltex LSis**  
Full range of controls for motor applications

**Zest WEG Group**  
Full range of controls for motor applications including pushbuttons, selector switches and isolators

## CABINETS FOR MOTOR APPLICATIONS

**ACDC Dynamics**  
Full range of cabinets and enclosures for all purposes

**ACTOM Protection & Control**  
MCCs; special and standard starters

**ARB Electrical Wholesalers**  
Full range of cabinets for motor applications

**Dry Ice International**  
Cleaning of cabinets with dry ice blasting

**Electrahertz**  
Full range of cabinets for motor applications

**Khanyisa Electrical Suppliers**  
Full range of cabinets for motor applications

**Legrand**  
Full range of type-tested LV cabinets

**Magnet**  
Cabinets for motor applications

**MCE Electric**  
Full range of Onesto mild steel and stainless steel enclosures

**Phambili Interface**  
Full range of cabinets for motor applications

**Power Process Systems**  
Full range of cabinets for motor applications

**Ptytrade 228**  
Full range of cabinets for motor applications

**R&C Instrumentation**  
Infrared inspection windows

**Sabelco Electrical Industries**  
Full range of cabinets for motor applications

**Voltex**  
Full range of cabinets for motor applications

**Voltex LSis**  
Full range of cabinets for motor applications

**Waco**  
Full range of cabinets for motor applications

**Zest WEG Group**  
Full range of cabinets for motor applications

+27 (0)11 874 7600

+27 (0)11 723 6000

+27 (0)11 879 2000

+27 (0)10 202 3300

+27 (0)11 879 6600

*Ptytrade 228 (Pty) Ltd*  
"Your Trusted Electrical Supply Partner"

+27 (0)11 918 7810

## Easy access to electrical box wirings with slim-probe open jaws

When you are measuring current with clamp meters, they are often cumbersome and you run the risk of your fingers touching live wires when opening the jaws, says Ryan Burger, Divisional Product Manager – Tools and Instruments of HellermannTyton. “With the new TBM038F Fork-clamp Multimeter, it is much easier and safer as you ‘stab’ the jaws onto the wire. Aimed at those testing panels, which, by their nature, are small with tight spaces, the compact, ergonomic TBM038F is narrower and flatter than most clamp

meters on the market, allowing users to get into small spaces safely.”

Users simply apply the fork-clamp around the conductor(s) of only one single pole of a circuit for load current measurements. Applying the clamp around conductors of more than one pole of a circuit may result in zero current or very small current (for instance to identify leakage current) measurements.

Burger notes that the innovative BeepLit function is unique to clamps in this price range. “BeepLit offers audio and visual warning during diode tests and

## How do you measure energy consumption?

With energy costs high, and getting higher, many facilities are trying to reduce their energy consumption. Most have not previously analysed their monthly energy usage, traced it to operational components, or broken out the utility fees. And until you understand how you're using energy, it's hard to make smart decisions on how to reduce consumption.

### Core components of energy

If you haven't measured energy before, take a minute to understand how it differs from volts and current. When we talk about the “energy” supplied by the utility, we're talking about two primary components: power and demand.

Power, kW, is commonly measured in Watts, which indicate the rate at which energy is expended in one second. Watt-hours describe the total energy expended over other time periods, such as a month, as recorded for ac energy use by our electrical utilities. Watt-hours measure actual work, such as heating or cooling buildings, moving objects or liquids, etc.

Demand, kVA, measures the total requirement that a customer places on the utility to deliver voltage and current, without regard to the efficiency of that delivery or whether or not it does actual work.

Now let's start measuring. Use a regular digital multimeter with an accessory current probe to measure the voltage and then the current, and then multiply the two values to get demand – kiloVolt-Amperes (kVA).

This works for a simple single phase circuit where the load remains stable for the period of the two measurements. For a real-life load, we need to account for a few other elements.

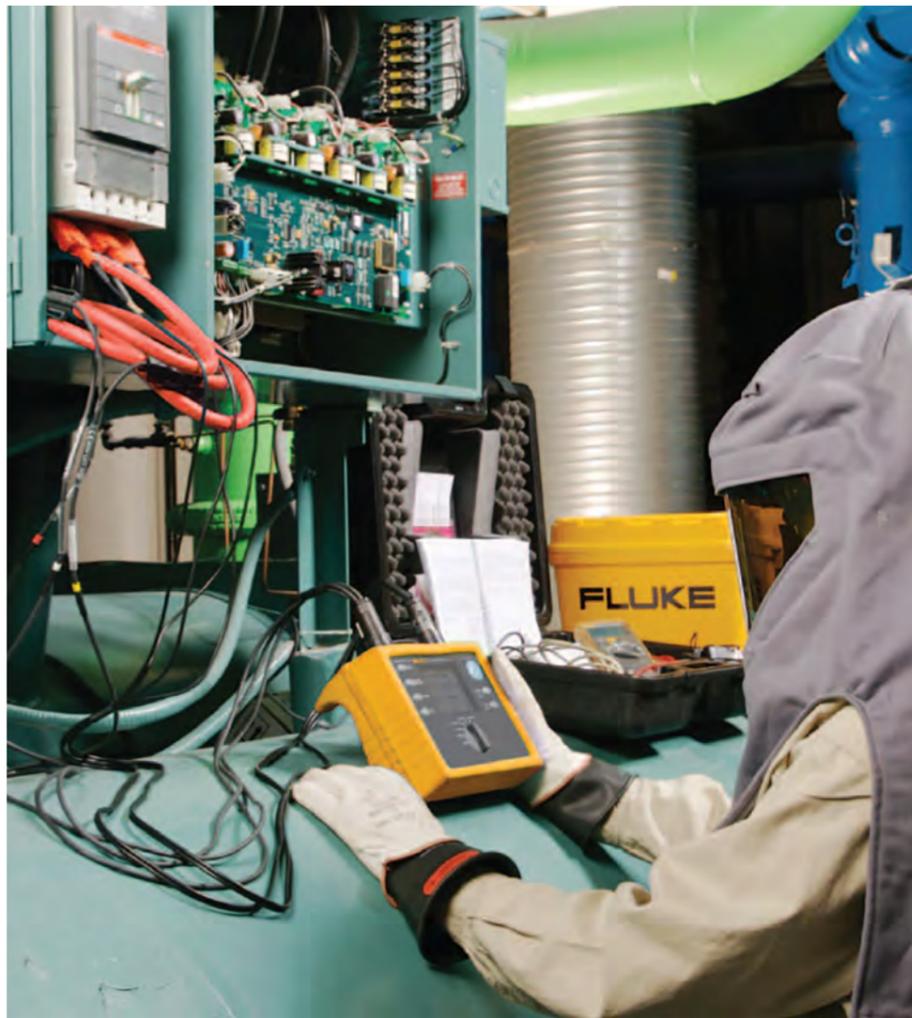
### Power factor, imaginary power, and harmonics

**Power factor:** If the circuit is operating at 100 % efficiency (which rarely happens), then demand is also a measure of power. In reality, power (kW) is usually less than demand (kVA). The difference, kW/kVA, is called power factor (PF). Utilities often collect a penalty charge if PF falls below 0.95. Some utilities are setting the bar even higher. Remember: Low power factor is bad; high power factor is good.

The typical industrial or commercial facility uses three phase energy distribution, and then uses that energy in a number of ways – to provide heating, operate three phase motors and motor drives, or handle single phase loads such as computers and lighting. Three phases make it harder to measure power or energy usage, particularly if you plan to use improved efficiency to reduce energy use.

**Imaginary power:** Volt-Amperes Reactive (var) is a strange type of current flow that produces no work, but is present on your electrical distribution system. It's part of the difference between power and demand and thus contributes to lowering power factor. It's usually caused by motor inductance, and is greater when those motors are not loaded to their full capacity. A constant speed motor driving a large air movement fan is an example where mechanical dampers have been used to regulate air flow, making a fan less efficient. This also reduces the load on the drive motor and increases imaginary power in the electrical supply system.

Many facilities opt to change their motor supply from direct line drive to an adjustable speed motor drive, so that they can optimise the motor's operation and speed to its load. That optimization



Using a Fluke 1735 Power Logger to log power consumption at a chiller to determine equipment efficiency.

uses energy more efficiently in the fan and motor and increases power factor.

**Harmonic currents:** These, reflected back into the supply system, are produced by the input rectifier loads of adjustable speed motor drives, computers, and similar electronic devices. Harmonics also reduce power factor.

### How to measure power

To measure real power, we need a meter that can simultaneously measure voltage, current, and all the stuff mentioned above that lies in-between, over a one second period. A digital multi-meter can't do that. The solution lies in a power quality tool.

Depending on the make and model you select, you can test single phase, split-phase, three phase (3 wire or 4 wire) measurement configurations, and measure or record, V, A, W, VA, var, PF and Harmonics. Some of the recording models also provide the means to record measurements over time to report the energy readings used by the utility – kWh, kVAh and kvarh.

The good news here is that these tools will account for all of the issues mentioned above and accurately report energy use when it happens, as a function of instantaneous voltage and current measurements over time.

### Timing

Here's the last complication. You can only measure energy as the work that your electrical system delivers to your loads, and that takes time. You can estimate what energy usage will be by observing power use for a short period of time. Using that information, you can project longer term energy usage with some simple math.

**Example:** A 100 W light bulb burning for one hour

consumes 100 watt-hours of energy. That same bulb would use  $100 \times 24 \times 365 = 864,000$  watt-hours, or 864 kWh, over a year.

It gets a little more complicated with motors, variable speed motor drives, and computers, but if you measure the power usage for one hour and then apply some assumptions to the results, you can estimate the energy usage for a month or a year, provided the rate of energy usage stays the same. The other option is to do a 30-day load study with a power logger.

### Getting started

Ready to measure power? Using your power quality tool, connect your voltage and current probes to your phase(s), and start monitoring. Check your Power (kW), Demand (kVA), and the resulting Power Factor. High PF is a good thing. Then check your detractors, vars and Harmonics. If they are both low, then your power supply is pretty pure and you should be running relatively efficiently. In terms of energy consumption, kW and KVA are the values to compare over time, as you make changes within your facility to reduce consumption.

So yes – you could use your multimeter to measure voltage and current, make your calculations, and go from there. But the whole point of energy reduction is that for the first time, electrical measurement accuracy makes a monetary difference. If your ‘energy’ calculations are inaccurate, because they don't account for power interferences in your system, then you really don't know how much you're consuming, or what impact your reduction efforts have. It's worth it to use at least an entry-level power quality tool to get real energy values, and to then track those over time.

Enquiries: +27 (0)10 595 1821



continuity for users; it visually lights up as well as having a series of different sounds. This function provides improved convenience for checking wiring connections and operation of switches,” he says. A continuous beep sound together with display backlight flashing indicates a complete wire. Such audible and visible indications improve continuity readabilities in noisy working environments

He notes that another valuable feature of the TBM038F Fork-clamp Multimeter is the Non-contact EF detection which allows users to pick up on live wires to determine if a conductor is carrying a current. “This function also allows you to trace wires in shallow areas by adjusting the sensitivity setting; a high sensitivity detection can be used to trace hidden live wires, ensuring safety whilst on the job,” he says. Furthermore, the Crest function allows you to sample readings and highlight anomalies. “Current or voltage spikes usually go unseen; however, the Crest function can be used to determine and display maximum and minimum spikes or dips.”

### Additional features

**Dual Sensitivities EF-Detection:** Features Non-Contact (NCV) and Single-Probe Voltage Detections for Identifying Live Lines; Added User Selectable Hi/Lo Sensitivities.

**12.5 mm ACA Fork-Clamp:** Measures ac 200 Amps for conductor size up to 12.5 mm (perfect for circuit breakers).

LVD CAT III 600 V and CAT IV 300 V: Certified EN61010-2-032, EN61010-2-033, EN61010-1 and Relevant Standards on CAT III 600 V and CAT IV 300 V.

**1.0% dc V Basic Accuracy:** Measures up to 600 V dc.

Direct LPF ACV and LPF Hz for VFDs: Measures voltage and frequency of most variable frequency drives and noisy electrical signals up to 600 V ac.

**Fully auto-ranging:** Shortens the time to measure and increases the ease of use.

**True RMS Measurements:** For non-sinusoidal and complex waveforms of voltages and currents.

The TBM038F Fork-clamp Multimeter will be available from the beginning of January 2021

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

## Power management: The solution to all your power needs

The number of challenges that keeps pushing industries in today's economic environment increases daily. From the crisis of the lockdown, through increasing regulations pushing power penalty fees, charges on total usage and maximum demand, to old machinery and huge inductive loads straining the plant power supplied.

To add to the stress, regular load shedding now a reality for the future, because Eskom is on a structured programme to repair and do maintenance and refurbishment. The industry is always looking to strive towards smarter solutions through technology to overcome these challenges.

With the growing market in solar power solutions and generator back up, solutions for power cuts is constantly being provided. The key to all power back-up and alternative supply solutions remain proper estimation and measurement of the supply need and supply usage, from average load usage to peak usage when this occurs. Mostly your electricity bill at the end of the month provides you with the basic usage data. Yet it is never accessible to you to monitor it yourself, nor does it offer you the

key information to correctly cost your system. The reliability of the data is not always up to standard and can you trust the accuracy of the readings?

### EDMI: the solution

Since 1978, energy companies all over the world have relied on EDM I to deliver the flexibility and reliability they need and the innovative solutions they demand. EDM I's experience, proven track record, and millions of EDM I multi-functional smart meters installed worldwide, mean that our products are tried and tested and that you can trust EDM I to meet and exceed your expectations.

Form the highest quality hardware to remote monitoring and data capturing. Power management has never been easier. With the products being AMI ready and STS compliant, you can use this meter to verify billing rates, total usage and maximum demand consumption. Providing you with special programming features to customise the measurements to your requirements. You have access to monitor what you should be billed for, anywhere if you have access to the cloud.



## Benefit from motor protection and energy savings



Motors and other electrical equipment are at high risk of damage due to bad power and rolling blackouts. In South Africa, the standard voltage is 230 V, but levels can fluctuate significantly throughout the day. As a result, most electrical equipment is designed and specified to operate most effectively and efficiently at 220 V-230 V, therefore providing equipment with higher voltages reduces efficiency and leads to wasted energy.

Using voltage optimisation with electrical equipment such as refrigeration or air-cooling devices, 3-phase motors, high-intensity discharge or fluorescent lighting, will reduce energy consumption and create real financial savings. Voltage optimisation also increases the service life of electrical equipment by running at the lower

voltages which the equipment was designed to run at.

The iVolt® from Sollatek is a state-of-the-art electronic voltage optimiser (stabiliser). Taking measurements over 3 000 times per second, the iVolt® maximises energy savings by using unique microprocessor, thyristor and transformer technology to ensure that the output power to your facilities is stable and optimised for maximum energy saving.

iVolt® units are available for sites ranging from small retail units up to large industrial complexes with motor control centres (MCCs) and have an investment payback period of typically 2-3 years.

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



The benefits from having access to your own energy consumption and demand, means that you can determine if your plant requires PFC, if you want to invest in a power back up system or alternative supply, the information provided by the meter will give you the ex-

act reference to correctly size your alternative supply system. EDM I provides the helping hand required to resolve all the challenges in industry's power consumption, making power management easy.

Enquiries: [info@acdc.co.za](mailto:info@acdc.co.za)

Features	Benefits
Unique IRT Energy Monitor® technology (patent pending) with cloud-based portal (optional)	Measures and reports actual energy savings accurately. Analytical tool for energy and engineering managers. Day by day analysis of savings, consumption and power
Stabilisation over wide voltage range up to 12% reduction	Maximises energy and cost savings when incoming voltage is high
Maintains stable voltage even if site voltage drops to 220 V	Eliminates risk of 'brown outs' and equipment failure when fixed tap systems are set too low
Active voltage stabilisation at ±1.5% of 220 V	Over 90% of sites in South Africa would save more energy with an iVolt® compared to leading fixed reduction systems
Independent 3-phase control	Active phase balancing, improved power quality to enhance equipment life
Solid state thyristor technology using zero volt switching	No moving parts in the power circuits, no annual maintenance required and no 'chopping' of the waveform
In-built electronic failsafe mode design with automatic integral bypass	Maintains continuity of supply to site
Removal of voltage spikes and surges	Added protection for site equipment and improved power quality
Manufactured with low loss component technology	The iVolt® is over 99.4% efficient at full load and maximises energy savings
Reliable and proven technology built in ISO9001 accredited facilities	All iVolt® units have a 15-year guarantee and are manufactured to relevant BS Standards. Over 440 000 units manufactured since 1987
RS485 and USB data communications	Fully integrable into building management software systems
USB port on main unit for data download	Ease of data extraction



**Voltright**

## PRECISE AND RELIABLE POWER FOR MOTOR CONTROL CENTRES

Motor inefficiency, high temperature and reduced overload capacity are just some of the detrimental or even fatal effects on motors caused by bad voltage. When controlling many motors from a centralised location (Motor Control Centre, MCC), a good supply is vital in ensuring full time running of all critical systems/facilities.

Protects against:






The Sollatek AVR range offers unrivalled protection for all commercial and industrial MCCs, providing a regulated and safe supply to the control equipment for maximised motor performance and preventing system damage.

**Features:**

- Wide input voltage range
- Fully solid state requiring no maintenance
- High reliability
- Very fast response time
- Remote monitoring options
- Warranty of 2 years

+27 11 788-1614    [sales@sollatek.co.za](mailto:sales@sollatek.co.za)    [www.sollatek.co.za](http://www.sollatek.co.za)



## Aurora Lighting launches new Bluetooth smart range



**AURORA LIGHTING GROUP** is pleased to announce the launch of a brand-new smart lighting range: Connect.Control. A super simple smart solution, Connect.Control can be used straight out of the box – there's absolutely no setup required.

Operated with Bluetooth technology, users can manage their lighting with just a remote control, an excellent method as it means that whether it's installed in the lounge, dining room or children's bedroom, anyone in the household can easily set the lighting to their preference.

To install Connect.Control in any room, simply open the box, install the light fittings, turn on the remote and you have smart lighting. Users do not even need a hub or have to download an app.

The remotes can be grouped to each room and users can access six RGB colours, trigger five pre-programmed scenes, set brightness or adjust colour temperature from warm to cool.

Connect.Control is designed around five levels of control, allowing users a simple upgrade path:

**Level 1:** Products work straight out of the box with the remote.

**Level 2:** More Connect.Control lights can be added to the system, which all function together.

**Level 3:** Users can group lights and remotes together, still without the need for the app.

**Level 4:** Access to the Aurora BLE app, which enables users to edit the out-of-the-box 5 scenes recalled

from the remote, take control of individual devices, create schedules to suit routines and access the music mode. The music mode brings lights to life when it is played either through the user's mobile or by placing the phone near a speaker.

**Level 5:** Upgrade path that enables users to enhance Connect.Control with Aurora's wider Bluetooth range.

The introduction of this system now enables contractors to offer and use either of the two AOne systems – Bluetooth or Zigbee – in their projects. Chris Hill, Aurora's Product Manager for AOne, says: "Connect.Control is a brilliant system for anyone who wants smart lighting in their home as it is so easy to use. With many homeowners focusing on updating their interiors at the moment, smart lighting is becoming increasingly popular and we are delighted to be able to present them with this option at this time. The beauty of this system is that it can easily be used by anyone in the family or household. There are no sign-ins to apps required by each member or anything like that. All they need to do is pick up the remote for that room to set the lighting to their taste, which makes life much easier for everyone."

The AOne Connect.Control kits and products will be available from your nearest wholesalers nationwide.

Enquiries: +27 (0)11 234 4878

## Smart home technology and how lighting fits in

The Internet of Things (IoT) has seen quite a surge in interest of late and it is built on the premise that electrical devices can be connected and accessed online, or through an internet connection. If we think about the home, let us use a couple of examples: geysers, fridges, doorbells, lights, speakers, curtains and blinds etc. With IoT, these devices can communicate inside your home with a smart hub and can send you information at any time you want or need.

Smart Technology enables the user to automate or program the ability to control items around the house. If you want your shades drawn at 6pm, configure it like that. If you want your lights to change from 4000 K down to 3000 K colour level after 8pm – you got it – just click and save. Enabling home automation with regards to lighting can be relatively inexpensive and can be done yourself from a retrofit perspective. Others, such as installing and setting up surveillance cameras would in all probability require a trained installer.

Illumina Lighting has in the past completed many hospitality projects and has worked closely with Lighting Designers on a variety of lighting control systems employing different communication protocols, most notably DALI which is an acronym for Digital Addressable Lighting Interface. Every light fitting that needs to be controlled will have a DALI controller that notifies the central system where it is and is then controlled through the address that is assigned. Expensive, complex to program and all the controllers and drivers are usually installed into a central room so that they are easy to repair when something fails.

As technology moves forwards, these systems are in danger of being overtaken by lower priced, better equipped through state-of-the-art wireless technology.

### Smart hubs

While there is a plethora of hubs out there, which ones are available and supported in South Africa? The big

## Spazio introduces new range of street pole products

**SPAZIO** aims to be at the forefront of innovation and to bring the best quality and value for money products to the market. With this in mind, the company has decided to expand its range to include street pole lights.

The first product Spazio introduced in 2018 was the Beppe 400. This modern luminaire is made of shockproof resin, it is UV stabilised and is rust and corrosion free, making it suitable for installation at the coast as well. The clear diffuser is made up of UV-ray stabilised polymethylmethacrylate (PMMA). The Beppe 400 comes complete with a 50 W, high power, long life LED E27 lamp, with an impressive raw Lumen of 5300. This fitting also comes complete with its own 2,5 m Ektor pole and cage for secure fixing to concrete foundations.

As a result of the popularity of the Beppe 400, Spazio has decided to expand the range of street pole luminaires to include:

### Gino 400

The Gino 400 is similar to the Beppe 400 in terms of size, the anti-corrosion material used as well as the high power E27 LED that it is supplied with. This fitting, however, is not supplied with the Ektor pole. This means that the luminaire can be installed on any 60 mm pole of any length.

### Giorgio and Rosa

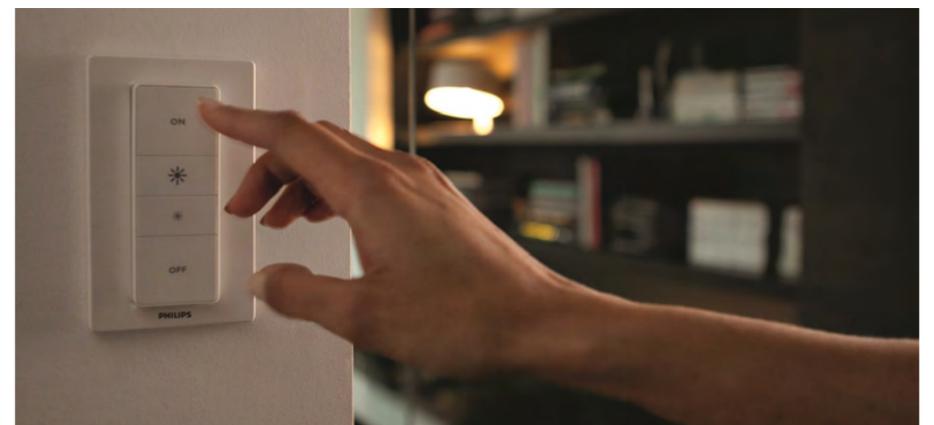
The Giorgio and Rosa are post top systems with single or double luminaires made up of shockproof resin that is UV-rays stabilised and rust and corrosion free with an IP rating of 66. The fittings include a bracket which allows for the head to be adjusted up or down to direct the light emission of the fittings in the desired direction. These fittings are also supplied complete with 4 x 10 W high power GX53 lamps per luminaire.

### Ektor Pole

The Ektor Pole is a modern lighting pole made up of a single piece of material without any joints. It is made up of shockproof composite resin material (steel-expanse-resin) which is UV-ray stabilised as well as corrosion and rust free. No maintenance or painting required. A unique post technology is used to give the post the same strength features as a metal post but with the advantage of being rust and corrosion resistant.

The inner structure of the pole is made up of structural galvanized metal. The outer layer consists of shockproof resin which is rust and corrosion free. In between these two layers there is a thick layer of high-density rigid polyurethane which provides lightweight and durable cohesion between the inner metal post and outer resin cover. The pole has a diameter of 60 mm making it suitable for use with a large number of post tops including the Gino 400, Giorgio and Rosa. This pole stands at 3,5 m tall and comes complete with an inspection door and fuse holder as well as a cage for fixing into concrete foundations.

Enquiries: +27 (0)11 555 5555



players in the market are undoubtedly Amazon Alexa, Google Assistant, Google Home, Samsung Smart Things and IFTT (If This Then That) and finally Xiaomi Mi.

With Alexa's 3rd Generation Echo Dot and Echo Plus models, it can be as easy as plugging your smart device in, whether that be a smart plug or a smart bulb or wireless hub or Wi-Fi controller and saying: Alexa, find my devices. Alexa does the rest. After a short setup sequence which include naming your areas, devices, and schemas, you can simply say: Alexa Dim the living room lights to 60% and it will be done.

### Smart bulbs

How many electricians/electrical contractors does it take to install a smart bulb? The age-old joke but you will not like the answer much. The answer is: None! But your clients will love you for it. Slightly more on the expensive side of course, but you have the added advantage of not having to install any cabling or Wi-Fi RF controls. You screw the product into the light fitting, download the app to your phone and connect to it wirelessly. This is a simple and straight forward solution that has its drawbacks e.g. few systems allow you to automate on/off functions but you as long as you have an internet connection,



## Solar lighting for Holbaai

**H**olbaai is a beach close to Melkbos, a beautiful seaside village on the north-western fringe of the Cape Town Metropolis. It is well known for its tranquillity, wide white beach, water sports and west-coast hospitality. Holbaai has recently received its first solar lighting installation.

A lighting solution was needed for the Holbaai to enhance visitors' feeling of safety and wellbeing, and since there is no electrical supply close by, a solar lighting solution was the only option. The BEKA SOLAR was the lighting solution chosen for this project.

The locally designed and manufactured BEKA SOLAR has been optimised to offer the most customisable solar solution for road and urban applications. This solar street light for outdoor residential and public applications gives you a full customisable option to suit all off-grid solar lighting requirements.

The BEKA SOLAR, combined with the ZIYA luminaire, provides a reliable lighting solution with a high Ingress Protection level (IP 65) that withstands high ambient temperatures and vandalism (IK 10). The ZIYA range is a sustainable off-grid performer with a superior lumen/watt ratio.

Furthermore, each luminaire has a motion detector installed. When there is no movement, the light dims down to a low light level without compromising on security in the parking area. As soon as there is movement, the light ramps up to full output.

The photovoltaic process is optimised by efficient Polycrystalline solar module technology to maximise solar energy. This in turn offers the best energy storage options and autonomy available on the market with our range of battery options, namely Lead, Lithium and the new SuperCapacitor. This SuperCapacitor removes the depth of discharge (DOD) issues, and furthermore offers extended life and discharge cycles.

Controlling the whole system and using this solar energy by programming the MPPT charge controllers protects and optimizes the system from any internal and external factors, like thermal environmental changes when charging the batteries.

The BEKA SOLAR offers the following key advantages:

- It has been designed to operate reliably at a high light output over a 12 to 14 hour period.
- It has sufficient autonomy to cater for up to four continuous overcast or rainy days, to continue its reliable night operation.
- Integrated solar components.
- Theft and vandal resistant.
- Specifically engineered for all geographical locations in Africa.
- Various battery technologies available to meet

specific customer requirements.

BEKA Schröder locally develops and manufactures energy-efficient LED lighting products, designed and suitable for local conditions. The company is proud to be associated with CDE Supplies and City of Cape Town in providing a successful solar lighting solution for this project.

Enquiries: +27 (0)21 510 8900



## ECOBAY

LED highbay and lowbay

Designed and manufactured in South Africa

Very flexible: Available for lowbay or highbay applications

Highly efficient and energy saving (replaces up to 400W HID light sources)

you can turn it on or off, or change its colour from wherever you are.

Products such as Yeelight and Philips Hue are best in class and have support from smart home hubs such as Amazon Alexa, Google Assistant, Google Home, Samsung Smart Things and IFTTT. With Philips Hue, if you add the Hue Bridge to your purchase, you can add up to 50 smart Philips devices to your home and control it from your phone, that includes inside and outside lights and devices.

### Smart light switches

Sonoff is a product that looks and feels quality. Easy to install and with a wide range of applications such as wall mounted wireless light switches that can dim, one, two or three lights, smart Wi-Fi plugs, wireless cameras, wireless USB adaptors, cameras and humidity and temperature meters. Again, all easy to install and configure and all great options to offer your clients.

Conrad Wagener is the owner of Illumina Lighting Pty Ltd, a project lighting company serving local and international clients. Illumina has recently launched [www.lighting.co.za](http://www.lighting.co.za) and is the largest online retailer dedicated to lighting and lighting accessories.



+27 11 238 0000  
[www.beka-schreder.co.za](http://www.beka-schreder.co.za)



LOCALLY manufactured

## LED dimmer ranges available from Crabtree

CRABTREE SOUTH AFRICA'S dimmers are available in its legendary Classic range, which is manufactured locally and SABS approved. The Classic steel cover plate range is durable and perfect for any residential or commercial use. The elegant Diamond range, also manufactured locally and SABS approved, comes in various different colours and is the ideal choice for the discerning homeowner and office.

All dimmers comply with IEC/SANS 60669-1(-2) and have valid NRCS LOAs (Letters of Authority, a Gazetted legal requirement for locally manufactured or imported dimmers). They are also universal: dimmable LED lamp compatible and backwards compatible with halogen and incandescent lamps

Each product is factory default trailing edge (recommended for most dimmable LED lamps and drivers) but automatically senses inductive load and switches to leading edge control if required. The dimmers are short circuit protected with auto reset and can be digitally set to suit the lamp requirements, such as minimum and maximum intensity.

### Features of the ranges include:

#### Bell-press (125 W, 500 W):

- Intuitive wiring.
- Two and multiple way switching and dimming possible.
- User presets available.
- Turn switched rotary (500 W).
- Classical rotary: turn fully anticlockwise to turn off.

#### Push on/off rotary (225 W, patent pending – coming soon):

- Familiar rotary operation.
- Soft push-in rotary knob to turn on or off.
- Soft push-in rotary knob can be used as a bell-press control.
- User presets available via integrated soft push switch.
- Two and multiple way switching and dimming possible via an optional bell-press switch.
- Universal mechanical mounting.

### Dimming generally provides four technical advantages

**1. Trailing edge dimming:** This provides a natural soft start for a lamp which reduces inrush currents and a positive impact on the lamp lifetime (applies to LED and halogen/

incandescent lamps)

**2. Reduced power consumption:** The graph (table) below shows the measured power consumption of a typical LED lamp when dimming (trailing edge). There is a significant energy saving when dimming (applies to halogen/incandescent lamps as well).

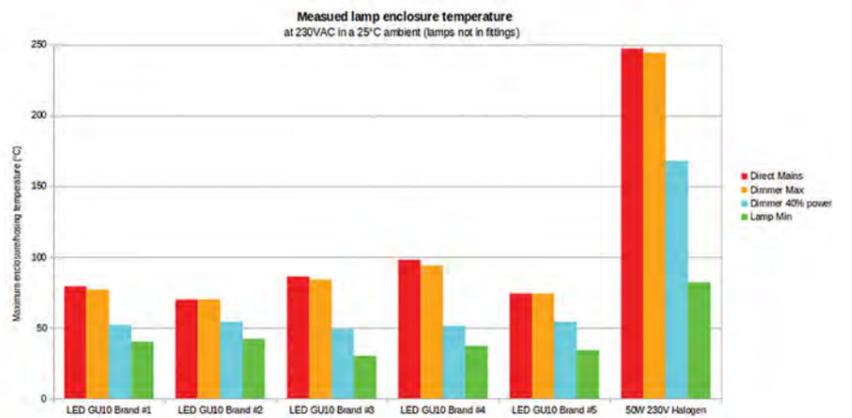
**3. Reduced temperature:** The table alongside shows the measured case/enclosure temperature of a typical LED lamp when dimming (trailing edge). As the power consumption reduces when dimming, the lamp operates cooler as well. An LED lamp consists of two electronic sections: the physical light emitting diode component which provides the light and the driver which converts the incoming power to a constant current for the LED component. Both these parts see a tremendous benefit in operating at a lower temperature which increases the lamp lifetime. Although a halogen/incandescent lamp does not contain any electronic components, the carbon or tungsten filament of the lamp benefits from a lower operating temperature.

**4. Increased Lumen-maintenance life:** (The elapsed operating time over which an LED light source will maintain the percentage of its initial light output). As the light emitting diode component ages when operating, its maximum light output decreases. Data from numerous manufacturers, however, show that a reduction in operating temperature of the component greatly increases the time before the maximum available light output decreases.

Only qualified and registered electrical contractors are permitted to install dimmers. A certificate of compliance must be issued for the installation which requires that all products used in the installation comply with regulation. Electronic switches, which includes any type of dimmer (manually operated or 'automation' types), are NRCS compulsory specification category products (VC8003) which implies that the only proof of compliance with South African regulations is a valid NRCS LOA (Letter of Authority).

Graphics courtesy Shuttle Lighting

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



Lamp number	Direct Mains	Dimmer Max	Dimmer 40% power	Lamp Min
LED GU10 Brand #1	5.2	4.8	2.6	1.2
LED GU10 Brand #2	5.6	5.6	1.9	0.5
LED GU10 Brand #3	5.2	5.0	1.8	0.3
LED GU10 Brand #4	6.3	6.2	2.5	0.9
LED GU10 Brand #5	6.0	5.7	3.6	1.2
Halogen (50W, 230V)	47.6	46.4	19.2	4.3



## Update on Extended Producer Responsibility Regulations

As per previous communications (including the front cover article of the *Sparks Electrical News* May 2020 issue), various PROs and other interested parties have been engaging with DEFF over the past eight months regarding the proposed Section 18 notice.

Section 18 refers to the Extended Producer Responsibility aspect of the National Environmental Management Waste Act (NEMWA) and essentially replaces Section 28 (Industry Waste Management Plans) from 2017. All industries welcomed the introduction of the Section 18 process as it allows industry to raise, manage and disburse EPR fees themselves.

Although this update as issued by the Lightcycle SA Producer Responsibility Organisation, focuses on the lighting sector, it is important to note that the regulations and information in this article are applicable to all sectors including the electrical and electronic equipment sectors.

### Where are we now?

On 26 June 2020, the Minister of Environment, Forestry and Fisheries (DEFF), Ms Barbara Creecy, published an amendment to the National Environmental Waste Act under Section 18 in the form of Extended Producer Responsibility (EPR) regulations for consultation. Members of the public and industry were given until 26 August 2020 to comment and revert to her with objections or suggested changes.

The regulations published for consultation are as follows:

- Section 18 Extended Producer Responsibility Regulations which all industries are obligated to comply with.
- Section 18 Individual Sector Notices published for the lighting sector, electrical and electronic equipment sectors and the paper & packaging sectors.

An Extended Producer Responsibility (EPR) scheme is a policy approach under which producers are given the end-of-life FINANCIAL, ADMINISTRATIVE and OPERATIONAL responsibility for their products put on market. This mainly involves a take-back scheme of post-consumer products for the collection, transportation, repair, refurbishment, management, and

treatment. The administration and operational costs of the PRO is also covered by the EPR fees.

The producers are obligated to pay the EPR funds to the PRO. Each producer will be tracked for compliance through various mechanisms to ensure they are paying their required EPR fees to the PRO.

A Producer Responsibility Organisation (PRO) is an organisation that assists producers meet their extended producer responsibility targets through various key stakeholders within the value chain in the country. The PRO is responsible for setting up and managing the value chain mechanisms for the targeted waste material and to create awareness for the recycling of all electrical and electronic waste.

### Emphasis is on the role and responsibilities of the Producer Responsibility Organisation (PRO)

The PRO must be operational by the time the final regulations are published. Once promulgated, the EPR Scheme will substantially change the regulatory environment in South Africa, not only for the obligated producers and users of lighting equipment, but for the Producer Responsibility Organisation (PRO) for lighting, namely Lightcycle SA. It will be the responsibility of the PRO to drive sector-based waste minimisation programmes, manage financial arrangements for funds to promote the reduction, re-use, recycling and recovery of waste; drive awareness programmes and innovate new measures to reduce the potential impact of products on health and the environment.

### Expected timeframe for implementation

Once approved and promulgated, producers and PROs will have six months to become compliant. However, Minister Creecy has made it clear that she wants to implement the new regulations before end October 2020. This means that the targets for the first year and reporting requirements will commence at the beginning of 2021.

### Next steps

The Department of Environment, Forestry and Fisheries invited Lightcycle SA to submit comments on the draft EPR Regulations regarding the S18 Extended Producer Responsibility Scheme and the S18 Lighting Industry Notice. Lightcycle SA has been engaging with DEFF and other PROs to gain further insight in the interpretation and concerns raised by other industries to be considered as a part of the Lightcycle SA comments submission. Lightcycle SA has also received confirmation from DEFF that the Section 18 policy framework proposals submitted to the department on the 15 June 2020 by Lightcycle SA NPC, will be included. The proposal that was submitted can be viewed by clicking the news tab and the news item "Framework on EPR regarding Section 18 of NEMWA".

The draft regulations that were out for consultation can be viewed on the Lightcycle SA website ([www.lightcyclesa.org](http://www.lightcyclesa.org)) by clicking the news tab. The comments as submitted to the Department on 26 August 2020 will be considered by the Department for inclusion into the final regulations. Once the final regulations are published all parties that have registered to join the PRO will be notified.

### Call for producers to register with Lightcycle SA PRO

Producers are urged to sign up and register with the PRO as soon possible. There will be a sign-up fee and more information will be given to registered parties. To register and sign up with the PRO please visit [www.lightcyclesa.org](http://www.lightcyclesa.org) and click to register on the PRO registrations Tab.

By Patricia Schröder, PRO Manager, Lightcycle SA NPC

Enquiries: [patricia@urbanelements.co.za](mailto:patricia@urbanelements.co.za)



## UV-C for fast and effective deep-cleaning

UV light is electromagnetic radiation with wavelengths shorter than visible light but longer than X-rays. UV is categorised into several wavelength ranges, with short-wavelength UV (UV-C) considered 'germicidal UV'. Wavelengths between about 200 nm and 300 nm are strongly absorbed by nucleic acids. The absorbed energy can result in defects including pyrimidine dimers. These dimers can prevent replication or can prevent the expression of necessary proteins, resulting in the death or inactivation of the organism.

Germicidal UV for disinfection is most typically generated by a mercury-vapour lamp. Low-pressure mercury vapour has a strong emission line at 254 nm, which is within the range of wavelengths that demonstrate strong disinfection effect. The optimal wavelengths for disinfection are close to 260 nm. This process is similar to the effect of longer wavelengths (UV-B) producing sunburn in humans. Microorganisms have less protection against UV and cannot survive prolonged exposure to it.

"When we started in the field of horticultural lighting, there was a need to disinfect plant crops, which are susceptible to mould, spores and fungi," explains Giantlight's Otto Horlacher. "Most professional growers have a disinfecting mechanism, and it is typically UV-C. So, having worked in the field - long before COVID-19 - we had an inside line and realised that UV-C was a viable mechanism for combating the disease."

The company pivoted quickly and started generating products for its Jaeger range (German for hunter) three during the first month of lockdown.

### Two local solutions

"We have developed products that use UV-C to disinfect in two ways; to clean the air and to clean surfaces," notes Horlacher. An 'air scrubber' is essentially a device where UV-C lamps are hidden within a chamber. The air is sucked in, blown over the chamber and extracted back out into the room. 'Dirty' air goes in, bacteria is killed, and clean, sterile air, is blown out. With an air scrubber, you protect all living organisms, other than pathogens that have been sucked in, as the UV-C is hidden inside an enclosed chamber.

Giantlight then designed a surface cleaner, which has to be operated in isolation. "It does have a safety passive infrared sensor, however, which works in reverse," explains Horlacher. "When you are in the room, it switches the light off, as opposed to a passive infrared, which senses you and turns it on."

A practical example of where this could be used would be a cinema, where there are typically five shows a day. "When you leave after watching a movie, the staff come in and clean-up the popcorn and spilled Coke," he says. "They have about 10 minutes to do that and there are 45 minutes between shows. Having cleaned, the staff can walk out, close the door and hit the UV-C light switch. Within 15 minutes, every inch of the cinema is sterilised."

The company has stuck to old-fashioned tube technology as it has found that no LED product produces the same quantity of UV-C at the same price. Because UV-C is very aggressive (glass filled plastic is used, and the rest of the casing is metallic), specific types of plastics are used. For the tubes, as normal glass has metal elements in it that filter out UV-C, quartz is used. Quartz glass does allow UV-C to travel through it, but it is a lot more expensive.

The air scrubbers can be fitted with an hour meter so users can register how long the lamps have burnt. The lamps have an effective life of between 8000 and 9000 hours, so operators can measure accurately when the lamp needs to be changed to maintain the efficacy of the product as a germicidal unit.

The new products come with a number of new operational instructions, and a warning sticker. The air scrubbers can be hung, suspended or even mounted on a tripod to be moved around. The only downsides of the products are the UV-C will, over time, attack plastics and materials - much like items being left out in the sun - and the added cost of

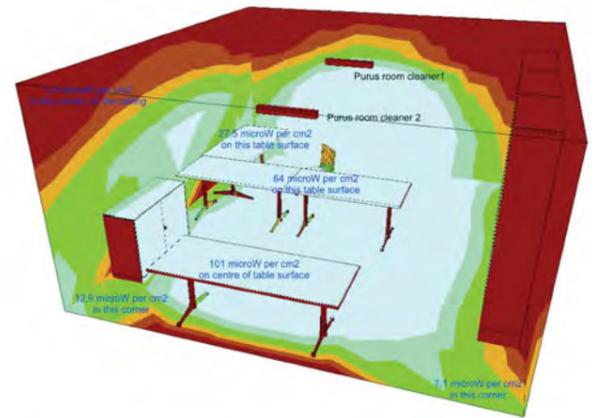
electricity.

### The future for UV-C

"Even if we find a vaccine, I don't think any of us will ever again think the same way," says Horlacher. "The science is there; the public just needs to be educated about it. UV-C is a form of PPE, and from a commercial aspect, the maths works. Instead of having to close production for hours or days for a deep clean - which means a loss of revenue - UV-C can be used."

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

Example of a room with two surface cleaners installed at ceiling height. If you were to take TB as an example - 6200µW per second per cm<sup>2</sup> is required to render these bacteria inactive. Then if you take the lowest level achieved in the room - 1,4µW in the top left ceiling corner - divide 6200 by 1,4 = 4428 seconds. Therefore, it would take 73 minutes to render any TB in the far top left corner of the ceiling inactive. Yet, if you take the work surfaces - such as the main table in the centre of the room at 64µW per second per cm<sup>2</sup>, TB would be rendered inactive in 1,6 minutes.

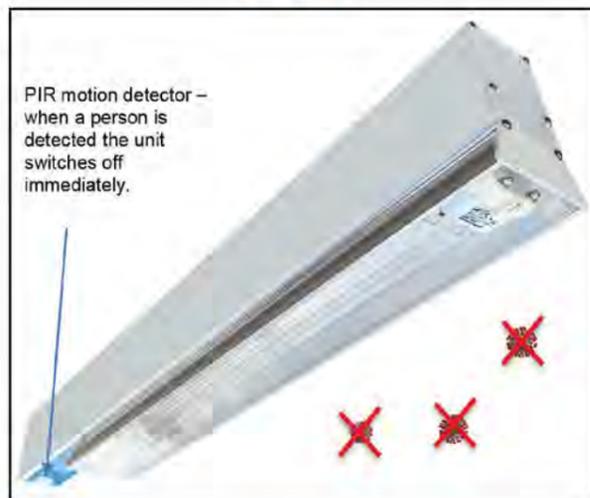


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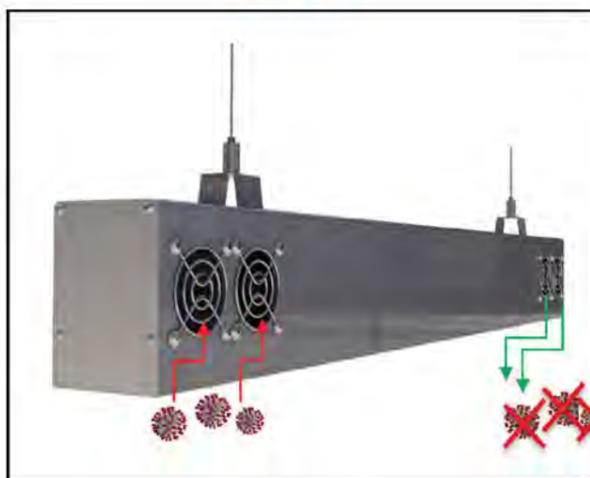
## Introducing the JAEGER range of germicidal UV-C lights

Jaeger 1



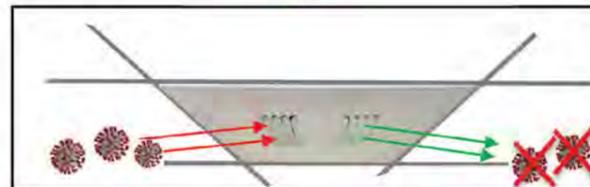
Pendant or surface mount or recessed mount UVC - germicidal unit. For surface cleaning of pathogens.

Jaeger 2



Pendant or surface mount or recessed mount UVC - germicidal unit. For scrubbing the air clean of pathogens.

Jaeger 3



Lay in 595 x 595 mm air purification unit Simply drops into ceiling grid - like a panel light. For scrubbing the air clean of pathogens

Giantlight (PTY) LTD

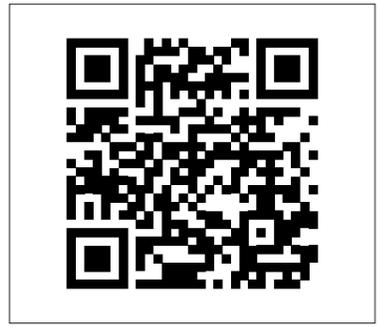
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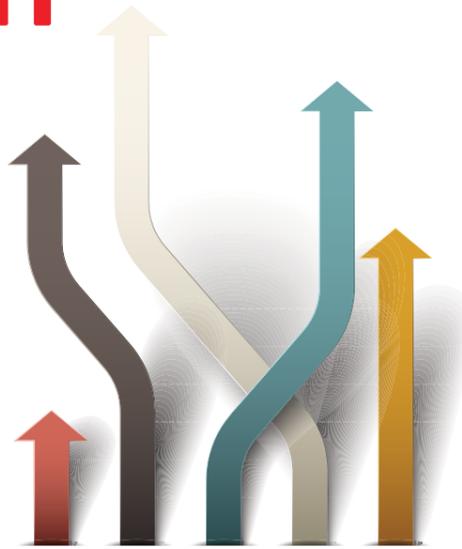
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