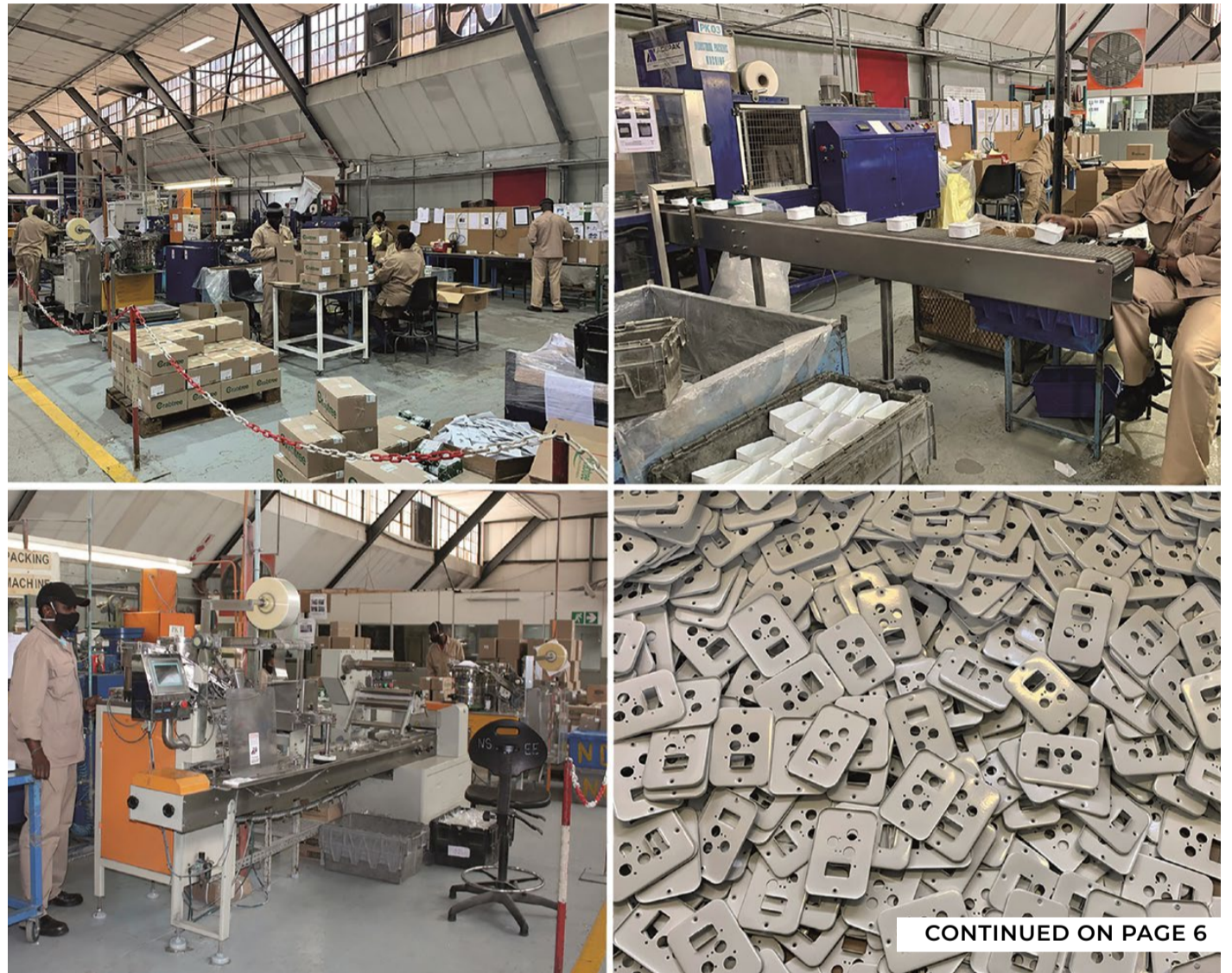


LOCAL AND GROWING SINCE 1947



CONTINUED ON PAGE 6

GEWISS

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JOINON is a service for charging all electric vehicles, covering both the technological infrastructure of the product and its entire management (including technical assistance and maintenance). From the charging stations to the app for smartphones and tablets and the smart management of the charging units: a complete system that makes environmental sustainability a key competitive advantage.

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It does not take long after entering Crabtree's factory in Wadeville, Johannesburg, to realise the enormity of the operation. It is abuzz with activity, the rumble of machines and ever constant movement of people, equipment and stock.

Crabtree South Africa first opened its doors in 1947, as a subsidiary of a UK parent company. From those early days, the Crabtree ethos is to be a company that meets the high demands of its customers through the provision of technically superior products, unrivalled service and superior support and back-up infrastructure.

In 2018 Crabtree was purchased by Siemens AG, and became part of the Siemens Electrical Products division, reporting to Electrium Sales Limited based in the UK. Crabtree's world-class technical abilities are well recognised with the company winning several technological awards for its ever-expanding branded range of products that continue to add value and quality to South African homes and businesses.

Crabtree has a solid national distribution footprint locally and is a significant exporter of electrical accessories to SADC countries, and more recently to Europe and the Middle East. Crabtree is proud of the quality, safety and reliability of its products which conform to the most stringent SANS and British Standards and it is also a member of the South African Safehouse Association.

Riding the challenges

"We have seen many challenges over the past 20 months, especially for local manufacturers," notes Crabtree's Product Development Manager, Brett Johnson. "We had many issues, when borders were affected during COVID-19 lockdowns, where we had little notice," he says.

"The COVID lockdown is a worldwide phenomenon, our customers were and continue to be very flexible and accommodating during this period," explains Johnson. "We needed to adapt and would like to thank our customers for their support as business changed constantly from

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How electricians can use Twitter to grow their businesses

Having a successful and popular Twitter account is much easier than it seems. There is a series of unwritten rules on how to engage properly on each social network, and the 140-character one, in addition to being one of the easiest to use, is one that brings the best results when it comes to strengthening your content, whether it acts as a support to your website or simply to amplify the content you want to share with your followers. Here are nine tips for growing your Twitter account:

1. Post relevant content for your target audience

It may seem obvious, but as the saying goes, if everyone is your customer, then no-one is your customer. The key to success in anything is specialising in a specific field – for you it would be electricity.

It is best to focus at least 60% of your tweets on your strongest topic. The public that follows you depends on your habits and your direction, and you are directly responsible for the type of public that ends up following you. Likewise, if you cover too much, and your focal point is not well defined, you won't shine in any environment.

2. Follow those who will help you expand

It doesn't make sense to follow every user you come across because it does not ensure that you will get a response from them. Twitter is an exponential network, and each new follower is a possible new branch of expansion, so you should decide whether it is worth following certain people if they are not going to retweet anything of yours, or if you don't like their content to begin with.

Following just any official account will probably be of less value than if you follow someone who shares similar interests as you, because the latter will most likely end up retweeting your posts, thus sparking a chain reaction that a one-directional account could never offer you. It is better to have a modest user who relates closely to you than a big and inaccessible one.

3. Post at specific times

There are strong hours for posting on social networks. Posting first thing in the morning is not the same thing as at midnight, and if you get in the habit of posting your activity at certain times, your content will increase in visibility, which will benefit you in the long run.

Activity studies confirm that there are certain hours of higher traffic. Most activity occurs in the slot between 11 am and 4 pm, and the least amount of activity occurs in the early morning and weekends. If you post during those time periods, it will be more likely that, in addition to getting read more, your followers will interact with you as they read the content in the moment and not later on.

4. Be consistent

As with everything in life, consistency is what gets goals achieved. Just as it is beneficial to tweet at certain hours, it is important to maintain similar habits when posting over time. An account that posts 20 times in three days, and then goes silent for three weeks suggests neglect and opportunism, causing you to lose followers you gained during the times



when you were active. In the long run, the numbers will have stayed the same.

5. Make your profile information clear

Don't be too ambiguous when you post your description. Your user profile and your avatar are the best tools for getting users interested in you, as if they were your business card. Even though it is not necessary, using an image of yourself as your avatar usually produces better results than if you use something else. Likewise, if you specify with detail what you talk about on your account, half the work will be done when looking for potential followers and explaining to them what you offer.

6. Participate in conversations

Anyone who has studied anything related to theories of communication surely knows that a basic element of interaction between the transmitter and the receiver is bidirectionality. It does not make a lot of sense to be a Twitter star for life, posting a lot but not retweeting or interacting with the content of others. This attitude inhibits the possible relationship and makes you appear unreachable and distant on the social network. What you sow, so shall you reap, and others will always be grateful for your interaction.

7. Be positive

Many marketing experts say that controversy is a very efficient tool for generating interest. To insult and criticise is a popular sport of the masses in today's age, but it goes without saying that that kind of attitude promotes negativity. Life is unfair and cruel enough as it is and you don't have to extrapolate online about your daily life.

8. Use a program that suits your needs

Twitter's official client, both the desktop and smartphone version, has all you need to manage your account. But there will come a time when it isn't enough, especially if you manage several accounts at once, or if you have too many followers. Using Twitter on your smartphone is what brings home the bacon, and the number of available apps to manage your account is almost bigger than those available for desktop.

9. Be yourself

In the end, a social network isn't anything more than a reflection of who you are and a means of sharing your experiences and anxieties with others at a greater dimension than your everyday routine allows. Even though the inherent privacy and anonymity of the Internet can tempt you to create a false identity, being true and authentic is the best way to get people interested in you or your business on the Internet.



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Pratley Putty has been a mainstay product for over 50 years

When compiling a list of South African inventions that have made an impact on a global scale, Pratley Putty will always feature among the top performers. Pratley Putty hasn't just made its way around the world, this strong adhesive putty has even travelled to the moon. The latest accolade for the ubiquitous Pratley Putty is being featured in the book 'Uitvinders, Planmakers en ander Slimkoppe van Suid-Afrika' by local author Engela Duvenage.

"Pratley Putty is a product that continues to perform very well. It has been proven in a lot of different applications. Although it was launched many years ago, it is a unique and trusted product, and one that continues to go from strength to strength," says Pratley Chief Executive Officer Andrew Pratley.

During the 1960s, Pratley founder George Montague (Monty) Pratley and his laboratory invented the world's first epoxy putty. Initially, it was intended to be used internally for insulating and affixing terminals to cast iron electrical junction boxes. However, the product was subsequently introduced into the local market as Pratley Plastic Putty, a name that ultimately became Pratley Putty.

An agreement to manufacture the product under licence to a company in

the United States was concluded, which introduced the product to the American Space Agency even before it could enter production in the USA. When the space agency decided to use the product aboard its Ranger space craft, the product was supplied from South Africa via the American distributor. Hence it became the only South African product to go to the moon.

Pratley Putty was also featured at a 'Destination Moon' exhibition at the Sci-Bono Discovery Centre in the historic Electric Workshop in the cultural precinct of Newtown, Johannesburg, in celebration of the 50th anniversary of the Apollo 11 moon landing on 20 July 2019. In honour of this occasion, the South African Mint also featured Pratley Putty in its 'South African inventions' series of silver commemorative collectible coins that recognise some notable South African inventions.

Pratley produces over 800 products across its adhesives, electrical and minerals divisions, in addition to over 350 patents filed to date. Pratley actively exports to international markets as diverse as the UK, the US, Australia, New Zealand, Europe, Middle East and the Far East. A growing export market for Pratley Putty in particular is Africa, due to the popularity

of Pratley's products for quick DIY automotive repair work.

Its diversification strategy has stood Pratley in good stead in building up each division by cross-pollinating its research and development (R&D) efforts over the 73 years that the company has been in existence. "If one industrial sector is down, we have other divisions in the company that are usually doing well. Especially during this time of Covid-19 and the ensuing economic downturn and market volatility, our strategy of diversification over the years pays off," highlights Pratley Chief Operations Officer Charles Pratley.

Another key factor to Pratley's ongoing success is that it has always remained a 100% family-owned and managed business. "That has helped us tremendously in terms of our diversification because it affords us the freedom to bring new and innovative products to the market very quickly. We are able to make decisions relatively quickly and bring new products to market in less time," adds Andrew.

Pratley is even diversified in terms of its manufacturing methods and know-how, especially as it carries out the vast majority of its own production, from plating electrical cable glands to in-house powder coating, adhesives mixing, and even perlite processing.



Andrew and Charles Pratley next to the famous 13t bulldozer suspended using Wondafix.

As far as the longevity of Pratley Putty is concerned, Andrew highlights that Pratley has a very loyal customer base established over many decades. "In many ways, our customers educate us as the manufacturer in terms of new and innovative applications for not only Pratley Putty, but for many of our adhesive products," stresses Andrew. As for the future, Andrew reveals that a lot of products that have been in the R&D pipeline for three to four years have now come to fruition, from mineral to world-first electrical products specifically for applications in hazardous

areas. The latter includes Pratley's new Flameproof Double Compression Cable Gland that adheres to all relevant international standards and requirements.

Pratley has also redesigned its main website, as well as the separate websites for its adhesives, electrical and minerals divisions. "We have made some major improvements in terms of adding additional content, sophisticated search functionality and improved ease of use," concludes Andrew.

Enquiries: sales@pratley.co.za

Vermont Sales opens innovative trade exhibition centre

The successful annual Vermont Sales Open Day shows have had to be put on hold due to COVID-19 and the lockdown restrictions, yet the company has come up with a unique alternative. By converting and revamping its previous head offices into a state-of-the-art customer exhibition centre, the company is able to showcase its world class brands on a rotational basis, allowing small groups of customers the opportunity to view international brands and new product ranges in an uncluttered environment.

The new centre includes several tailor-made private areas for permanent brand exhibits. The exhibition space will be utilised for an individual brand or range to be shown each month, with new methods of marketing and merchandising of products in a store environment, along with support material. Product will also be demonstrated in this space, with a large screen showing the products at work, or for training purposes.

"The exhibition centre will focus on the brand of the month," says Dale Englebrecht, Director Vermont Sales. "The opening show this month was for the AirCraft brand of air tools, compressors and accessories; the team also showcased other leading brands and new products at the same time, such as Worx, Pony, CAT, and Bernzomatic."

"The core focus is to offer one-on-one time with key decision makers from the trade, retailers, and dealers. The small, personal groups will allow us

to offer dedicated time and service. On display will be the full range of products, new and current, merchandising concepts, POP, and POS material, to showcase the brands and allow Vermont Sales' brand managers, key accounts team members and management to meet, and touch base with customers," Englebrecht says.

All items on show are available to customers, from the product to the customised shelving, racking, free-standing displays and all POS. The customer can order and walk away with a complete, readymade stocked display. There will also be special added value deals for all the display units which will be supplied free to customers, depending on the orders placed. Experienced teams from Vermont Sales are on hand during the exhibitions to assist all customers, along with a full catering set up and coffee bar.

"We had to move fast and come up with an alternative for our trade and retail customers," says Jacques Davids, Vermont Sales Exhibition Manager. "This new centre was the perfect solution for entertaining customers and giving them a full day of getting to know the brands and products. We have had a very successful test run this month with our current exhibitions in the centre of AirCraft, CAT, Bernzomatic and WORX products."

The centre is open to all trade and retail customers.

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The person who wears, cares for and uses protective clothing properly

As an employee of electricians, determining the necessary types of protective clothing to protect them from the hazards associated with flames and electric arcs is the first safety step.

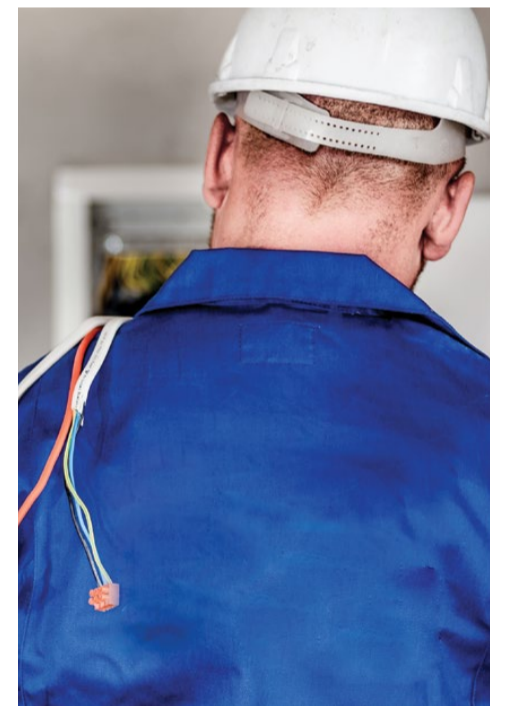
After completing the initial assessment and estimating the incident heat energy potential of the exposure to electric arcs, you will need to determine what type of clothing is necessary for protection that is equal to or greater than the potential heat energy. Once the type of clothing is determined, it is the employer's responsibility to provide that protection to employees. Many organisations offer stipends for employees to select approved items from preferred vendor catalogues, while others have in-house distribution of clothing to keep the "look" uniform. Either way is acceptable, as long as the clothing protects to the level of exposure.

Many employers make the mistake of assuming that once they have performed the hazard analysis and determined what level of protection is needed that their job is complete. While they have met the intent of the rule's requirement, they still have more to do. Specifically, they have to provide education on the clothing's proper wear, use and care. The use and care information is usually handled by the vendor providing the clothing. There are specific instructions for laundering, if there is no company-sponsored service, and for when to change out the clothing because it is damaged or soiled to an extent that the protection factor is compromised.

What does compliant wear look like? When it's 30°C outside and your workers are sweating and thirsty, do they unbutton their shirts at the collar? Roll up their sleeves? Untuck their shirts? These actions are all non-compliant, and basically make all of the clothing's protections a moot point.

Enforce proper wear

Enforcing its proper wear is one of the most difficult and overlooked aspects of compliance with protective clothing. Yes, I know it sounds mundane. But let's look at it from a protection perspective. A shirt with an open collar provides an avenue for an arc to get to the employee's body and cause that second degree burn, or greater that we are trying to prevent. Likewise, sleeves rolled up and shirts untucked create the same issue. You may not want to



be the clothing police, but in the interest of compliance and, more important, employee protection, you need to take that step and reinforce the rule. It will only take one burn to convince the crew that what you are preaching is the right way to do it. Do you really want to provide that real-life example of why it is necessary? I think not!

Eliminate non-compliance

A simple way to assist with compliance is to eliminate the option for non-compliance. Buy long-sleeved pullover shirts that are lightweight and protective. These can also be purchased in hi-vis style so the outside vest can be eliminated. This takes away an outer layer, and while it may not add much to comfort, it removes a potential hazard: the vest getting caught on objects. You should also ensure that keys and other objects are not hung from belt loops and that water is available during hot and humid days. The first step is understanding protective clothing requirements. Proper wear is where the protection comes from.

By Chuck Kelly



Tips for effectively marketing your electrical business online

When the lights are off and no one is in the office, your business is still open. Even during regular business hours, most of your customers probably visited your website before calling. With the internet at most people's fingertips, your business is accessible 24/7. Therefore, online presence is crucial because it is where people research your company and determine if they are interested in doing business. Through an effective online marketing strategy, your voice can be heard above all the noise and make it easier for customers to find you.

First impressions

Think about the last time you met someone new: maybe at a conference, a civic event or your kid's soccer game. When they asked what you do, how did you respond? Did you dive into the history of your company, highlight all the projects you have completed or explain to them what services you offer or, better yet, what problems you solve for your customers? Too many companies focus on the history of their successes rather than how they fill their customers' needs.

At the speed of the internet, consumers can search multiple options for services they need in moments. Therefore, it is crucial to make it quick and easy for your customer to know how you can help them and why they should choose you over your competition. Unfortunately, you have less time than a 60-second elevator pitch to grab a prospect's attention and convince them to take action.

Your marketing message is more about your customers' needs than what you want to say. If you spend too much time explaining who you are and your history, you will lose the audience's interest, and they will move on to the next service provider.

The simpler you make it, the more likely visitors to your website will be to engage with you and take the next steps to become a customer. Your home page is more about what your customer is looking for than what you want to say.

So how do you know what information people are looking for? Put yourself in your best customers' shoes. What problems do they have that you can solve for them as an electrical contractor? This information should be front and centre on your website. Once you have caught their attention as the superhero, they consult you to help meet a business or comfort need. Make it easy for customers to take action. If you genuinely want their business, then ask for it.

Hey! Look over here!

Now that you have built your website, how will customers find you? Think of your website as the nucleus of your marketing efforts. All your marketing aspects should complement one another and point to your website. As you drive traffic to your site, there is a clear CTA, and you will begin to convert visitors to customers.

As you promote your company on social media, include a link to your website and have your web address on company vehicles. If possible, display your web address and logo on any sponsorship opportunities.

In my experience, most contractors are all about doing things themselves. There can be the general attitude of "I don't need to hire someone because I can figure it out on my own and save some money." Many service providers in the market cater to these types: do-it-yourself and have your site live in hours. It's like building only to Code minimums. It gets the job done, but does it provide the most useful installation for the customer?

More to the story

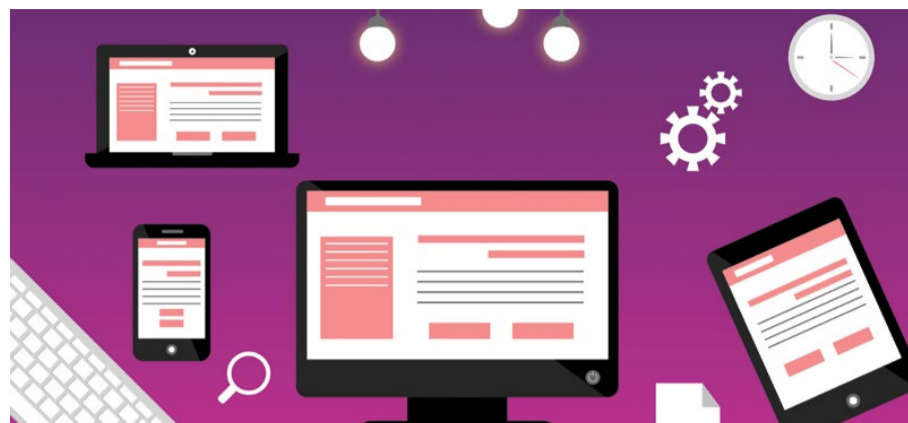
You can create a website, but there is much more to making it an effective marketing tool with a good content strategy. How do the messaging and site structure tie in with your other marketing efforts? These and other elements must be considered to get the most out of your online presence.

Whether you are a solopreneur just getting started or a large contractor wanting to build up your online presence, focus on what you excel in. You are in business to fulfil your customer's electrical,

low-voltage, transmission or other power needs and not in the business of marketing strategy and implementation.

Just as you want to be hired as the expert in your field because you provide solutions to your customers, seek out professionals who are marketing experts and provide website design and online marketing solutions. Think of your online presence as an investment rather than an expense. The more professional the appearance and congruent the message, the better positioned you will be to command higher rates for the solutions you provide.

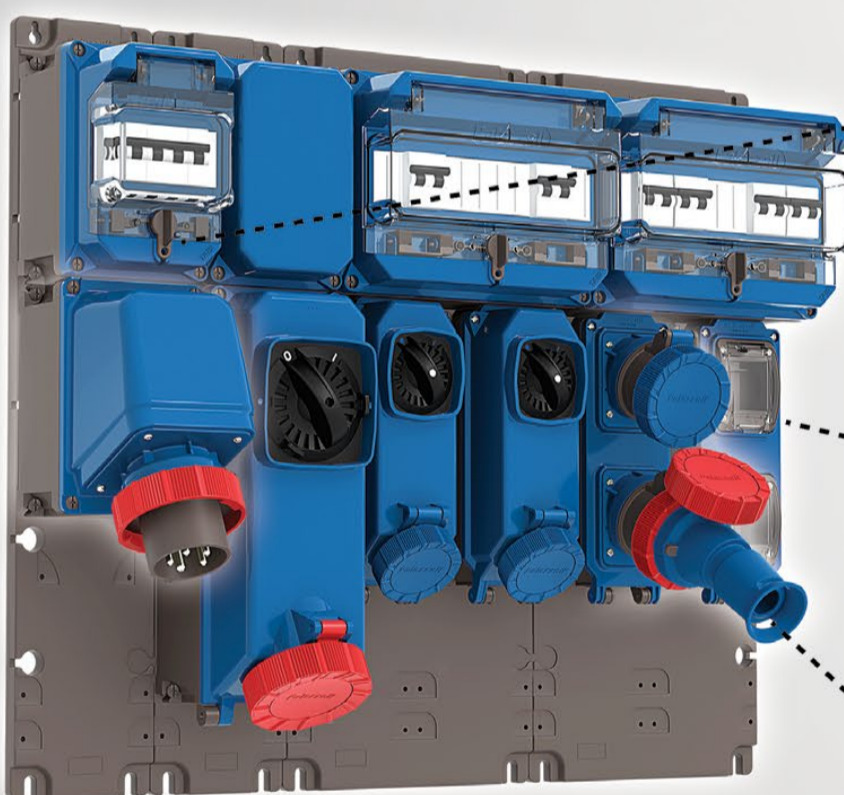
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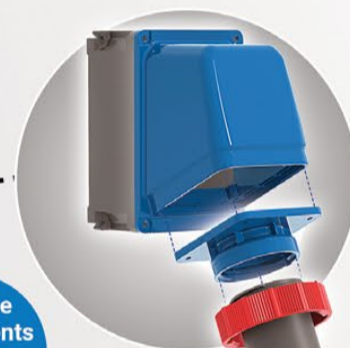
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Conditioning monitoring with intelligent drives in Industry 4.0

The fourth industrial revolution, which is also known as Industry 4.0, refers to the combination of physical assets and advanced digital technologies that communicate, analyse and act upon information, which in turn enables organisations and consumers to be flexible and make more intelligent, responsive, data-driven decisions.

Industry 4.0 has emerged as a result of the intelligent networking of computers, people and devices, fuelled by data and machine learning, using all possibilities of digitalisation across the entire value chain.

This significant change in technology has led to a whole new way of working in a digital world. It embraces the internet of things (IoT), artificial intelligence (AI), robots, drones, autonomous vehicles, 3D printing, cloud computing, and nanotechnology, to name a few.

Trends in industry 4.0 automation systems

In automation systems, the impact of Industry 4.0 on motor systems is a migration from the 'automation pyramid' to 'networked systems'. This means that the various elements of the system, such as motors, drives, sensors and controls, are interconnected and connected to a cloud data centre, where data is stored, processed and analysed, and decisions are made.

In an automation network, the amount of data is prominent. As data is mainly produced by sensors, the number of sensors in modern automation systems is increasing. Sensors are required to collect data from motors and motor-driven machines such as fan, pumps and conveyors, and then connected to the data network by various means to use the data.

Modern variable speed drives open new opportunities in the Industry 4.0 automation network. Traditionally, drives have been considered power processors for controlling the motor speed. Today, drives are also part of the information chain, using the advantage of

built-in processing power, storage capacity, and communication interface, within the drive itself.

What is an intelligent drive?

In the Industry 4.0 network, the drive plays an important role and is characterised by some enabling features:

- **Secure connectivity:** The drive can connect to other elements in a secure manner. Other elements in the network may include drives, PLCs, sensors, and a cloud data centre.
- **The drive acts as a sensor:** The drive uses motor current and voltage signature analysis to sense the motor and application performance.
- **The drive acts as a sensor hub:** The drive acquires data from external sensors related to the process, which is controlled by the drive.
- **The drive acts as a controller:** The drive can replace the PLC wherever application constraints allow.
- **Bring your own device concept:** This uses wireless connectivity to smart devices such as a smartphone or tablet.
- **Information from the drive can be identified as follows:**
 - **Instantaneous signals:** Signals which are directly measured by the drive using built-in sensors. Data such as motor current, voltage, drive temperature, and their derivative, which is power as a multiplication of current and voltage, or motor torque. Moreover, the drive can be used as a hub for connecting external sensors that provide instantaneous signals.
 - **Processed signals:** Signals which are derived from the instantaneous signal, which can include statistical distribution (maximum, minimum, mean and standard deviation values), frequency domain analysis or mission profile indicators.
 - **Analytics signals:** Signals which provide indications of the condition of the drive, motor and application. The signals are used to trigger maintenance or

lead to system design improvements.

Motor current signature analysis techniques enable the drive to monitor the condition of the motor and application. The technique allows the system to potentially eliminate physical sensors, or extract early fault signatures that might not have been possible to detect. For example, using the technique makes it possible to detect winding faults in advance or mechanical load eccentricity.

The concept of the drive as a sensor hub involves connecting external sensors to the drive, thus saving the need for a gateway to connect the physical sensor to the data network. Vibration sensors, pressure sensors, and temperature sensors are examples of sensors which can be connected to the drive.

The advantages of the concept include as well as being able to correlate sensor data with different types of data present in the drive.

Why is condition-based maintenance needed?

The condition of a piece of equipment typically degrades overtime. The introduction of Industry 4.0 and the availability of sensor data means that condition-based and predictive maintenance is now possible. The idea of condition-based maintenance is to detect the potential failure before an actual failure occurs.

Such maintenance strategies use actual sensor data to determine the condition of the equipment in service (condition-based maintenance) or to predict future failures (predictive maintenance).

Condition-based maintenance acquires data from the equipment itself and uses it to monitor the health of the equipment in service. For this purpose, key parameters are selected as indicators to identify developing faults. In this case, planning maintenance actions provides many advantages such as:

- Downtime reduction;
- Elimination of unexpected production stops;
- Maintenance optimisation; and



Sydney Govender,

- Reduction in spare part stock inventory
- Condition monitoring follows a three-step procedure:
- Establish a baseline.
 - Define thresholds.
 - Perform monitoring.

Conclusion

Today, drives are more than simple power processors – they are vital elements in modern automation systems, with the ability to act as sensors and sensor hubs, and to process, store and analyse data, along with connectivity capabilities,

Drives are often already present in automation installations and therefore present a great opportunity to upgrade to Industry 4.0. This enables new ways of performing maintenance, such as condition-based maintenance. The functions are already available in some drives and early adopters have already started using the drive as a sensor.

By Sydney Govender, Danfoss Drives South Africa Senior Country Sales Manager
Enquiries: www.danfoss.co.za

LOCAL AND GROWING SINCE 1947

what we knew it to be; the support was extraordinary.

"In spite of all the challenges, we have grown the business," states Johnson. "Being a local manufacturer, our supply chain over the years has always been steady. Advantages compared to importers are that we were not impacted to the same degree in many aspects, i.e. from volatility in exchange rates to shortages of containers. We produce and distribute products at a steady rate taking cognisance of having to compete with cheaper imports. But, having said that, we do see the number of competitors/importers constantly expand and contract," he says.

"We face many challenges in our two factories, and these cannot be understated. However, we have long standing relationships with our suppliers of raw material; local and international suppliers who assisted us when shortages emerged worldwide."

Johnson says that experience is key. "We have employees that have been with the company for many years. For example, in our Product Development Department, we have employees with over 40 years' service with the company. I am a mere youngster here with 14 years' service – that tells you the sort of depth we have here. We have numerous systems, policies and procedures in place, but without expertise and experience, they mean nothing. Within the last 14 months we have added around 4000 new drawings of items to our database – new screws, new straps, new components – we are constantly innovating and improving," he says.

Why buy local?

"Advantages to buying a locally manufactured product are endless," says Johnson. "Our customers have the opportunity to contact the designer directly, which usually they do not have. You cannot pick up the phone and ask the likes of a car manufacturer to change something on the car that you would like to buy. We work closely with OEMs, reaching out directly to us – Crabtree staff who have spent multiple hours designing the product are willing and able to assist with an issue. Our medical range has expanded purely because we hear directly from the customer what product is fit for purpose and then we produce it – an importer is not necessarily able to accommodate these types of requests."

Crabtree's route to market remains that of electrical wholesalers, retail distributors and OEMs."

Johnson notes that South African switches and sockets are unique and that overseas sockets are an adaption of a standard – Crabtree offers full local supply and manufacture to local standards, one of the only companies in the field that melts plastic and cuts steel. "If you physically do this, those



challenges are completely different from those of an importer. The foreign material is subsidised, yet we don't have those luxuries," he says. "Being local, the standards are instilled in us. We actually have a staff member on the SANS working group, which allows us to add our input as a local manufacturer."

Future plans

"We are constantly looking at improving," says Johnson. "Whether it is by purchasing new machines, investing in new tooling or trying different processes ... we persevere and continue to streamline processes to cut everything down by a fraction, to make our factories run more efficiently, with fewer breakdowns and less downtime, this enables us to give the consumer exceptional products and availability without jeopardising the quality standard of our products."

He says that while it sounds counterintuitive, Crabtree wants its products

to last. "We constantly come across our products, which are working perfectly, 50-years down the line – that is what we are known for as a brand and we continue to maintain these quality standards."

"Another development which the company is understandably proud of, as mentioned before, is the fact that we are now competing with the world. British Standard, 13 Amp switches and sockets are designed, manufactured and exported to Europe and the Middle East which will see Crabtree South Africa grow stronger and stronger as an organisation," notes Johnson.

While enduring almost two years of global and local turmoil, including a pandemic, lockdowns and the effects of recent riots and unrest, Crabtree has managed not only to show resilience, but has been able to grow as a business. Johnson sums it up: "We cannot rest on our laurels. We always need to be on the cutting edge."

Enquiries: www.crabtree.co.za

CONTINUED FROM PAGE 1



WORKING KNOWLEDGE WITH TERRY MACKENZIE HOY

Let's talk about very large disastrous explosions

According to Wikipedia, in electrical and safety engineering, hazardous locations are places where fire or explosion hazards may exist. Sources of such hazards include gases, vapours, dust, fibres, etc., which are combustible or flammable. Electrical equipment installed in such locations could provide an ignition source, due to electrical arcing, or high temperature. This may lead to an explosion.

Standards and regulations exist to identify such locations, classify the hazards, and design equipment for safe use in such locations. These sorts of explosions happen much more often than one would think; frequently the press refers to "an explosion at a factory" or "an explosion at an industrial plant" and the public just assumes it may have been a boiler which blew up or some other thing, but not infrequently it was a cloud of ignitable dust, gas or flammable vapour which blew up when it formed an explosive mixture with air. For something to ignite there has to be a source of ignition and this often comes from sparks or arcs from electrical equipment. It may be thought that the chances of this occurring at the same time as a dust or vapour leak is pretty small; however, experience has taught us that sources of ignition do usually turn up and explosions occur.

From an electrical point of view, this is dealt with by (a) designating certain areas as 'hazardous areas' in which ignitable dust, gas or flammable vapour may occur either as a result of normal operations (for example in sampling from distillation columns) and making sure that electrical equipment is suitable for use in such areas.

The person who 'makes sure' has to be a registered Master Installation Electrician. Registration is controlled by the Electrical Contractors Association (ECA), and the process is not that easy. One may think that a simple solution would be to ensure that in a factory or plant, all the electrical equipment for use in such areas will not produce sparks or arcs or similar which may result in ignition of the flammable substances. This is possible but would be very expensive as the specialised equipment is not inexpensive. It is much cheaper to have a yearly inspection carried out by qualified specialists.

Ah, but few owners or managers want to do this. It's not that the specialists are so expensive, but more that sometimes they find that a whole lot of the plant is not safe and has to be revamped. If I were an owner, I would approach my insurance people and put it to them that a large explosion or fire would cost money and it may be that a sharing of costs to prevent this happening would be a good idea. Would the insurers come to the party? Who knows ...



One thing for sure is that any large explosion or fire will be costly, and, if it results in injury or death, will seriously affect plant operations. It happens that petrochemical plants are up to speed on this whole subject, but plants which generate explosive dusts (flour, meal, coffee creamer (!), pharmaceuticals, fertilizer, wood and the like) generally have management who are closed to the subject. Even worse, in my experience, are paint shops and LPG storage yards. When I see (as I have) an LPG connection outlet next to a welding plug or a lead light dangling in a flour silo, I have pointed this out. "Oh," they say, "never had a problem". Well, true enough, they have not. Not yet. Yet

the hazard is right there: 10 milligrams of dust per cubic metre forms a flammable mixture.

Now it happens that in this country there are a number of specialist firms that can assess the hazard you may or may not have from hazardous substances. It can't hurt to give them a call. In 2020 there were 62 dust explosions and at least as many flammable vapour explosions. These occurred in Europe, USA, China ... all over. It is really something worth thinking about. Just because it's never happened does not mean it will never happen. It can't hurt to be sure and safe.

Funding the sun: Solar PV financing options for industrial and commercial businesses

As years of mismanagement at energy utility Eskom results in continued power outages and energy tariff increases across South Africa's industrial and manufacturing sectors, domestic businesses are increasingly looking to renewable energy alternatives to power their commercial operations.

On the back of significant market growth, numerous financial mechanisms to fund larger commercial and industrial solar PV installations and operations have emerged in recent years. With the adoption of solar PV systems by commercial and industrial businesses now mainstream, the most significant consideration for these companies is selecting the most appropriate funding option for their solar project.

Power Purchase Agreements (PPAs)

PPAs are a popular choice among commercial and industrial consumers, owing to the fact that the installation, operations and maintenance of the system are fully covered by the solar services provider. Most often, this funding mechanism includes insurance and performance guarantees, with the biggest advantage being reduced electricity costs from day one. This allows business owners to enjoy the benefits of clean energy from a solar PV system installed at their premises, at no upfront cost.

"A PPA includes the installation of a fully operating solar system but removes the hassle of having to maintain, monitor, operate and clean the system for years to come. Business owners can now enjoy solar energy and the savings it will generate with zero capital expenditure or operating risks," explains SolarAfrica Chief Investment Officer Charl Alheit.

Following the signing of a long-term agreement, a solar tariff is billed monthly, based solely on the amount of energy the business produces. This tariff increases annually at a fixed escalation, allowing businesses to accurately predict future energy costs. "This tariff is up to 40% cheaper than the national grid, providing significant savings each month and over the lifetime of the agreement," Alheit adds.

Businesses that use large amounts of daytime power and operate five to seven days a week are likely to generate the highest savings from this funding model.

While ownership of the solar system will remain with the service provider until the end of the agreement, business owners have the option to purchase the system during the term of the agreement. Various exit options are available should a business owner wish to end the agree-

ment earlier, while any damage to the solar system will be fully covered by insurance.

Fixed roof rental

Fixed roof rentals have become a favoured choice for the owners of commercial shopping centres and strip malls, as a long-term roof rental agreement monetises their previously unused roof space. The solar services provider pays a fixed monthly payment to the property owner for the use of the building's roof space, which also produces solar energy for the property. The property owner pays the solar services provider for the energy used based on Nersa or municipal rates, while all other costs, such as system maintenance, operations and insurance, remain with the services provider.

Lease agreement/equipment rental

Under a solar lease agreement, also known as an equipment rental, the installation, maintenance and management of the solar panel and its components is paid for by the solar PV provider, while the business pays a fixed monthly lease payment for the duration of the lease term.

The monthly payment is determined based on the estimated annual production of the solar system. A lease agreement is unlike a PPA in that the consumer pays a fixed monthly amount rather than agreeing to purchase the power generated by the system at a set price per kilowatt-hour (kWh). "Unlike a PPA, your monthly solar lease agreement payments remain the same throughout the year, and the risk associated with the volume of solar energy produced and consumed resides with the property owner," Alheit says.

Upfront capital investment

Companies able to fund their solar PV project from existing cash reserves may find the upfront costs startling but the benefits appealing.

A medium-sized commercial system of 200 kWp currently costs between R1.9-million and R2.1-million, excluding battery costs. Benefits to cash-funded systems include VAT deductions, as well as Section 12b tax benefits and carbon credits, which can result in additional cost savings of up to 28%.

"However, the business is also solely responsible for all ongoing annual costs, such as installation, insurance, performance monitoring and management, which can amount to a minimum of R88 500 per year, along

with exposure to the performance risk of the system," explains Alheit.

Bank financing

Responding to increased interest by industrial and manufacturing energy consumers in solar PV solutions, several local banks have structured innovative finance agreements. Absa, Nedbank, Standard Bank and FNB all offer loans for solar PV installations, with primary instruments being term loans, instalment sales agreements, asset and property finance, mortgage-backed business loans and access bonds.

The lending period for commercial installations ranges between 5-10 years, while the collateral requirement for the debt funding is often taken against the underlying property and the system. "The challenge with receiving finance from the banking sector is that since they don't specialise in solar PV ownership, the solar production risk will remain with you and your monthly repayments will be fixed, irrespective of the system's performance. Further, you could be using up valuable credit lines with the bank," asserts Alheit.

SolarAfrica's PPA offering

As the first company in South Africa to offer solar financing through PPAs, SolarAfrica provides a solar finance solution through a PPA that enables business owners to reduce their monthly electricity costs by up to 40% and become more sustainable organisations, without having to pay any upfront capital.

SolarAfrica's fully-installed Tier 1 solar PV system requires zero capital investment, while the agreement includes full maintenance, monitoring and insurance throughout the lifetime of the agreement.

With over 100 PPAs across local and multinational businesses, the company conducts a full technical review to determine each client's consumption trends, which ensures that the solar systems provided are customised to provide the best possible cost savings for each client.

All systems are monitored 24/7 to ensure optimum customer savings and any faulty or broken equipment is covered and replaced at no cost to the client. "Not only do we offer a performance guarantee on all of our solutions, but the greatest advantage to SolarAfrica's PPA is our 'No Take, No Pay' clause, which means you only pay for the power you use," says Alheit

Enquiries: www.solarafrica.com

MANUFACTURERS

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

DISTRIBUTORS

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

ONLINE DISTRIBUTORS

HellermannTyton
Siba Fuses
Voltex online shop

CONTACTS

ABB South Africa
Customer contact centre
Aberdare Cables
Jyosthie 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
Circuit Breaker Industries: Low Voltage
Aletta Olivier
CCG Cable Terminations
Arthur Cameron
Central Support Systems
Faruk Cassim
Clearline Protection Systems
Tanya/Rakesh
Crabtree South Africa
Sales
Danfoss
Lynne McCarthy

CONTACTS

Dehn Africa
Kirk Risch
DRH Components
Rob Hare
Dry Ice International
Johan van den Bergh
Electrahertz
Frank Proude (Pta) Peet Lourens (Jhb)
Hamar Controls
Corne de Villiers
HellermannTyton
Ingrid Nicolaus
Helukabel
Doug Gunnewegh
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 Lighting
Alfred Weldon
R&C Instrumentation
Gerhard Otto
Sabelco Electrical Industries
Marc Moreau
Schneider Electric South Africa
Sales
Siba Fuses
Hi Hassen
Stone Stamcor
Mark Talbot
Superlume
Willie Garbers
Switchboard Manufacturers
Josh Berman
Three-D Agencies
Mark Jenkins
Versalec
Roland Fry
Voltex
Lizel de Jager
Voltex LSis
Rose Schulz
Waco
Jaco Coetzee
WearCheck
Kay Meyrick
Zap Electrical Wholesalers
Sales
Zest WEG
Sales

DISTRIBUTORS

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

DRIVES AND SOFT STARTERS

ABB South Africa
Full range of drives and soft starters
ACDC Dynamics
Full range of Vacon VSDs and Aucorn 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
Soft starters – <https://www.danfoss.com/en/products/soft-starters/>. Drives – <https://www.danfoss.com/en/products/ac-drives/>
Electrahertz
Full range of drives and soft starters
Hamar Controls
Manufacturers of Low Voltage Distribution Boards and Motor Control Centres to Customer Specifications and Requirements. Siemens Partner & licensed SIVACON S8 Manufacturer
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
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
Range of tools – Hydraulic Armoured Cable Cutters
Helukabel
Full range of armoured and shielded cables
Khanyisa Electrical Suppliers
Full range of armoured/shielded cables

ARMoured/SHIELDED CABLES

Lapp Group
Unirtronic data communication cables; Olfex power and control cables
Magnet
Range of armoured and shielded cables
Phoenix Contact
Range of armoured and shielded cables
Power Process Systems
Full range of armoured and shielded cables
Ptytrade 228
Full range of armoured/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
Complete cable management systems
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
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
Circuit Breaker Industries: Low Voltage
Full range of Magnetic Contactors, Thermal Overload Relays and Circuit Breakers
DRH Components
Earth leakage relays
Dry Ice International
Cleaning of electrical apparatus with dry ice blasting
Electrahertz
Full range of contactors, breakers, relays
Hamar Controls
Manufacturers of Low Voltage Distribution Boards and Motor Control Centres to Customer Specifications and Requirements. Siemens Partner & licensed SIVACON S8 Manufacturer
Khanyisa Electrical Suppliers
Full range of contactors, breakers, relays
Legrand
Full range of MCBs, MCCBs, ACBs and contactors
Magnet
Range of contactors, breakers, relays
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
Schneider Electric South Africa
Full range of contactors, breakers and relays

CONTACTORS, BREAKERS, 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
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
Circuit Breaker Industries: Low Voltage
Clip-In Dual Mount Surge Protection Devices
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 protection plugs (TSPIA/TSPIAF)
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
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
Circuit Breaker Industries: Low Voltage
Rail Mount Meters
Crabtree South Africa
Full range of cable management accessories
Electrahertz
Full range of cable management accessories
HellermannTyton
Full range of cable ties (T-series) including stainless steel. Full range of cable identification labels
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
Ptytrade 228
Full range of cable management accessories

CABLE MANAGEMENT ACCESSORIES

Radiant Lighting
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
Automotive tester (TBM319)

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 Lighting
Full range of displays (meter reading, etc)

Voltex
Full range of displays

Zest WEG
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

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; HO7; 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

Hamar Controls
Manufacturers of Low Voltage Distribution Boards and Motor Control Centres to Customer Specifications and Requirements. Siemens Partner & licensed SIVACON SB Manufacturer

HellermannTyton
Edge clips, convoluted tubing (confirms to automotive standards), burst protection sleeving (Helagaine)

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 Electrical
Full range of MCE and 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 lugs, glands and ferrules (with SABS approvals) and pre-insulated terminals

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, bacons 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
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

Voltex
Full range of controls for motor applications

Voltex LSis
Full range of controls for motor applications

Zest WEG
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

CABINETS FOR MOTOR APPLICATIONS

Dry Ice International
Cleaning of cabinets with dry ice blasting

Electrahertz
Full range of cabinets for motor applications

Hamar Controls
Manufacturers of Low Voltage Distribution Boards and Motor Control Centres to Customer Specifications and Requirements. Siemens Partner & licensed SIVACON SB Manufacturer

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

Phoenix Contact
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



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+27 (0)11 386 0000

Easing the headache of large motor interchangeability

When companies look at replacing large motors which were purchased and installed 20 to 30 years ago, they often find that frame sizes are smaller – which means the new models do not fit on the old bases.

The good news is Zest WEG has the answer: a custom-engineered adaptor plate which allows a smaller frame to fit on the existing base. According to Floris Erasmus, sales specialist HV motors at Zest WEG, this solution overcomes the problem without requiring any physical changes to the base.

“Many of the large motors operating in South Africa – in the larger size ranges of 400 to 500 kW and over – were manufactured according to the North American NEMA specifications – in inches,” says Erasmus. “If they are replaced by a motor made to IEC specifications – in millimetres – the size of the frame will be different.”

Also, he says, the dimensions of motors have generally become smaller over time, as efficiencies have improved. The result is that the frame size of a new replacement motor – whether NEMA or IEC – will invariably be smaller than that of the older units.

“The implication of this dimensional change is significant for customers, as it can become costly to adapt or replace the carefully constructed base,” he says. “These large



One of WEG's state-of-the-art facilities that manufactures large motors.

motor bases have been designed to handle heavy weights and considerable torque – often in excess of 10,000 Nm. To remove this and build another of the correct size is usually time consuming and expensive.”

There is also the height of the shaft to consider, he says. Ideally, owners want their replacement motor to occupy the same footprint in their factory, mine or workshop as it occupies a specific place to power the required operation.

“Smaller dimensions also mean that the shaft height may be too low,” says Erasmus. “Fortunately, a well-designed base plate can generally accommodate this change as well.”

He highlights that Zest WEG will conduct the necessary measurements on the existing old motors and supply a specially machined, fit-for-purpose adaptor plate. This will allow the new motor to fit on the existing



Floris Erasmus, sales specialist for HV Motors at Zest WEG.

old base and ensure a fairly hassle-free installation for the customer. Parent company, WEG's state-of-the-art facilities in Brazil, India and Portugal that manufacture the large motors can also supply the adaptor plate, ensuring that there is a perfect match.

Enquiries: www.zestweg.com

Point and shoot laser distance meter



Comtest is offering the Fluke 417D, an accurate, durable, point and shoot laser distance meter, designed for indoor and outdoor, dusty and wet conditions. The easy, one-button operation means users can minimise time taken by measuring, while the Fluke brand assures the quality and reliability of measurements taken. And, with simple function buttons, three different measurement tasks can be completed quickly and easily. The extra bright laser is clearly visible, so the target point can always be seen, even if the target object is in a hard-to-reach spot, or at a long distance. The 417D has a large 2-line illuminated LCD screen and three-buttons for easy-to-use one-handed measurements.

The 417D's features and benefits include:

- Measures up to 40 m (accuracy of 2 mm).
- One-button instant distance measurement.
- Quick calculation of area (square



- metres).
- Continuous measurement capable.
- Battery life 3 000 measurements and improved by 'auto shut-off'.
- Drop-tested to 1 m
- IP54 dust and water resistant.
- Three-year warranty.

Enquiries: bit.ly/3rQvz6

Schneider Electric launches mySchneider Panel Builder Programme



Schneider Electric has announced the launch of the mySchneider Panel Builder Programme, an interactive and intuitive platform that encourages transformative projects within the company's energy management ecosystem.

The South African launch also coincided with the Innovation Talk Webinar: Panel Builders Programme Launch virtual event, which was hosted on Microsoft Teams Live and featured a panel of experts interacting with Schneider Electric partners on benefits of the programme.

“With over 40 years of experience working with panel builders, the mySchneider Panel Builder Programme has been designed with our partners' needs in mind. The programme will enable partners to readily meet their customers' requirements while achieving their business development goals through convenient access to a multitude of tools and support mechanisms,” explains Reena Sharma, Channel Marketing Manager – Panel Builders, OEMs and Contractors for Schneider Electric South Africa.

The mySchneider Panel Builder Programme provides partners with:

- A digital ecosystem enabling today's panel builders to stay ahead of the curve.
- It provides exclusive access to a range of business insights and solutions that assist partners with gaining market share and expanding business opportunities.

Importantly, Schneider Electric partners can be solution providers, bringing the combined knowledge of the ecosystem to projects.

Upskill their workforce with our curated learning path

The agile and intelligent platform provides partners with the essential skills to keep their business and employees fully updated in the global marketplace, managing projects, IoT-enabled products and more.

Stay updated and future-ready with the latest industry trends.

The programme delivers the latest and most relevant industry developments, both from a global and local perspective. Partners can gain access to Schneider Electric's deep and relevant industry-specific knowledge.

“Our mission is to be your growth partner for a sustainable and energy-efficient world. Together we will simplify your work experience by establishing an open community driven by the need for open, digital solutions that deliver the positive changes we need,” says Devan Pillay, Vice President for Buildings at Schneider Electric.

Enquiries: www.se.com/myschneider

Ptytrade 228's full offering of MCCs and control panels

Ptytrade 228 (Pty) Ltd's panel division – 4iR Electrical – headed by Jose Carreira, is rapidly becoming a formidable force in the design and manufacture of electrical MCCs and instrument control panels arena.

Utilising the highest quality components from its supply chain partners, Carreira and his team of 10 are able to provide a tailored solution for your specific requirements. From design through build and factory acceptance test they offer a complete service which includes Jose's direct input on all applications.

Carreira has been building panels for over 35 years. Industries covered include mining, agriculture, water, and a wide range of production facilities.

He is experienced in the design and building of a wide range of electrical panels, including MCCs – both stand alone as well as containerised solutions – power distribution panels and Remote IO Panels to name a few. The company also designs and builds panels for hazardous areas and work in conjunction with various certifying bodies to deliver a solution that meets client's hazardous area requirements.

Ptytrade 228's panel workshop is staffed by skilled technicians who are experienced in all aspects of panel fitting, wiring, tubing, and testing. The company's panels are all subjected to fully integrated factory acceptance testing before client inspection. “The panel shop has access to the complete list of customers within the Ptygroup of companies, which im-



mediately brings potential customers/projects to our attention,” notes Brendon Chalmers, Ptytrade 228 owner. Despite the global pandemic, the panel division has been performing well this year. “The division has done far better than I could have asked for,” he says. “We have seen an upturn in enquiries as well as new customers coming on board.”

Panels offered include:

- Motor control centres.
- Containerised motor control centres.
- All types of isolator stations.
- DCS/Process Control Panels and Systems.
- Remote I/O Panels.
- Electrical Control Panels.
- LV Distribution Boards.
- Control Panel Design & Build.

Enquiries: +27 (0)11 918 7810

Anytime, anywhere – remote support for plant maintenance from Pepperl+Fuchs

Challenges such as the current pandemic, personnel costs, and a shortage of skilled workers are putting increasing pressure on companies. It is becoming more and more difficult to maintain large-scale plants efficiently and in accordance with requirements, as well as to resolve problems in a timely manner. Predictive maintenance is intended to remedy this situation and avoid failures while making more efficient use of time. Mobile end devices play a key role in implementing these strategies in many companies.

Especially in industries where many facilities or large-scale premises need to be maintained and inspected, the challenges of covering and carrying out the demanding work processes are becoming more and more apparent. Increasingly complex systems make it impossible for employees to memorise how to service each individual component. Experts are not available at all facilities and at all times to the extent that they are needed.

One major benefit of using mobile end devices in industry is the option for remote support from technicians when carrying out complex inspection procedures. Video calls or augmented reality applications can be used in hazardous areas via smartphones or tablets. Technicians on-site can contact experts or even the manufacturer of the asset if necessary and ask for their support regarding complex matters. This saves time and resources.

Digital end devices are useful as more than just on-site eyes and ears.



Such devices, including those developed by the Pepperl+Fuchs brand ecom instruments, have different functionalities – including an electromagnetic gyroscope, GPS, and cameras – that facilitate assessment of the on-site situation and enable experts from anywhere in the world to gain a precise insight into the circumstances. This enables the use of digital step-by-step instructions, and the use of remote support or customer-specific tools that can be used for a variety of tasks from plant management to plant inspection, as well as the implementation of digital training courses.

This gives employees instant access to all the information that they require to be quicker and better at their work, puts them in direct contact with the right support expert, and provides an overview of all open, in-progress, and closed cases.

Requirement profile for digital end devices for more efficient maintenance processes

To guarantee seamless support through digital drawings, a description of servicing steps, or through remote experts, the multifunctional end device must display even the most complex of applications without any problems thanks to its excellent image quality, even in strong sunlight. In addition to its smartphone series, ecom offers tablets such as the new Tab-Ex® Pro with 10-inch screen. Pogo pin charging and a powerful and replaceable battery with a capacity of 7400 mAh for a runtime of up to 15 hours ensure flawless operation and a long Tab-Ex® Pro operating time in the field. The high-resolution screen guarantees a clear image when receiving support via remote servicing or during video tutorials.

Corresponding accessories for smartphones such as the Smart-Ex 02 and tablets allow workers' hands to be kept free for the unimpeded execution of tasks on-site. Workers can be guided through complicated applications in real-time by experts without being restricted in their work thanks to suitable carrying devices, headsets, and cameras. We understand the importance of an extensive range of peripheral devices, which are perfectly tailored to the digital end devices of the brand and to the needs of those working in industrial or explosion-protected environments. These ensure that work processes can be carried out without any errors and that faults can be quickly rectified by the employees on-site.

The smart future of maintenance

To take remote support to a new level, ecom has been working intensively for some time on the development of additional products that can be used in combination with smartphones and tablets. Smart glasses have been the focus of development, since they can be operated optimally by the on-site employee using hands-free voice control and allow remote experts to gain an optimal view of the processes. The expert can provide support or guidance while information and written instructions are displayed live and directly in the worker's field of view. ecom pays particular attention to ensuring that the smart glasses and their functions are perfectly adapted for use in everyday industrial working environments and hazardous areas.

Unrestricted device communication for a perfect overview

Digital products and services enable the staging, management, and real-time monitoring of mobile devices. Providers rely on a combination of comprehensive mobile device management with corresponding device analytics. This offers a simple way to configure and manage the increasing number of mobile end devices. An analysis of historical and current data is accessible at any time and allows conclusions to be drawn with regard to function-critical correlations. Enterprise mobility management systems that are managed centrally by the provider can give a complete overview of complex systems. This relieves the burden on IT departments and provides more security for ongoing operations.

Maintenance in an agile environment

Expert guidance from other facilities and digital workflows help technicians to perform complex tasks on systems directly as part of a mobile solution. Integrating mobile end devices and tools is another step on the way to achieving digital production, servicing, and repair.

Smartphones and tablets need to provide meaningful support to technicians in their everyday work while being suitable for the conditions in harsh industrial environments and hazardous areas. It must be possible to use the devices worldwide. In addition to general availability, the devices are required to fulfill various requirements and must offer capabilities in a range of infrastructures and networks.

Mobile devices are more than just communication tools. As part of a digital overall solution, they provide mobile support for technicians by allowing them to query, record, and analyze data and respond independently and quickly to any scenario.

Enquiries: www.pepperl-fuchs.co.za

Circuit breaker cascading as a cost saver

Before we begin, we need to understand what the concept of cascading is, so that we understand how this can be used to achieve a good degree of cost saving. Definition: Cascading is achieved when using a lower rated kA breaker model down stream from a fully rated upstream breaker in a tested combo tripping arrangement.

One would anticipate that low level shorts, overloads say, would result in the downstream unit tripping, whilst at high levels the upstream as well as the downstream may both trip.

This should not be a great inconvenience in reality as high-end short circuits are indeed quite rare.

Many of today's modern circuit breakers are so fast at tripping that they cut off the fault current before reaching the maximum available. This is termed current limiting. This can be of direct benefit in that the construction of the current limiting circuit breaker can be a lighter duty build and achieve some direct cost saving if compared to zero switching types. Of course, this high-speed efficiency must be guaranteed or there will be serious tripping problems. This would then place a cost on these products and that the manufacturer must be a trusted supplier.

Manufacturers have identified this as an advantage that can be used to secure their products and offer some cost saving to the user, a win/win situation. Any single line diagram can be shown to have a number of circuit breakers in series from the supply transformer down to the end load use. Also, any circuit breaker being installed is required to be matched to the available short circuit at its installed point. It can be higher but never be below this kA.

Tests by manufacturers have found that in using their modern high speed current limiting circuit breakers it is possible to install a lower current rated breaker down stream from a fully kA rated higher breaker upstream. That is to say the down stream circuit breaker is installed at a higher kA level than it can claim compliance for. This can only be at the exact combination as tested and as such they tend to publish charts of the successful tested combinations.

This concept is termed cascading, and is where the cost saving in installing lower kA product is possible. (Generally, the higher the kA the more costly the breaker).

It is also not just a whim of the manufacturer/s but has been accepted into most of the world's wiring codes. However, using cascading does come with certain rules and requirements that need to be adhered to, to achieve success going forward.

Guidelines

- You need to follow the manufacturer's guide or table; these are the only options backed by testing to support this option.
- If your selection is not available the manufacturer would prob-

ably not support this option due to test costs.

- Keep the selection levels as basic as possible, multi levels of cascading add risks due to complexity.
- Any replacement breakers must be of the same type, model and manufacture, no mixing allowed.
- Older panels may have equipment that has been made obsolete so contact the supplier as to what would be recommended.
- Indicate the panel is making use of the cascade concept to warn others, SANS requirement too.
- Repeated tripping under high end faults will require early breaker renewal.
- Cable/distance still utilised where natural short circuit limiting is available.

Example

A manufacturer indicates they have done extensive cascade tests using a mid-range amp MCCB with their popular 5 kA industrial range of MCCBs. This typically is where large savings could be achieved as the smaller MCCBs are highly popular and very easily sourced as units.

The main incoming mid-range unit indicated as part of the cascade range is chosen to comply fully with amp/kA and the like. The use of any indicated downstream tested device from the 5 kA range paying special attention to whether single pole and 3 pole units can be used. (There are occasions that only 1P may be an option as it is noted from test experience that 1P units may pass tests easier than 3P due to the lower applied voltages.)

It can normally be seen that the 5 kA requirements are for quite a large number of these units as there are many circuits that are in service. The use of these 5 kA units is where the real savings are factored in especially in large numbers. Future maintenance is easier as a contractor can easily source if they don't already carry these popular models with.

Another popular method, if the main breaker is of a higher amp rating, could be the introduction of the cascade units as section breakers.

Flack has recently retired from industry and believes he still has valuable in-depth knowledge of the South African electrical landscape due to wide experiences gained in his 45+ years working career. He is keen to explore the training arena so that this can be passed on to the current youth so as to benefit their practical ability in the electrical field. In these trying COVID-19 times, Flack can provide online training to keep your staff up to date on all aspects of circuit breaker deployment.

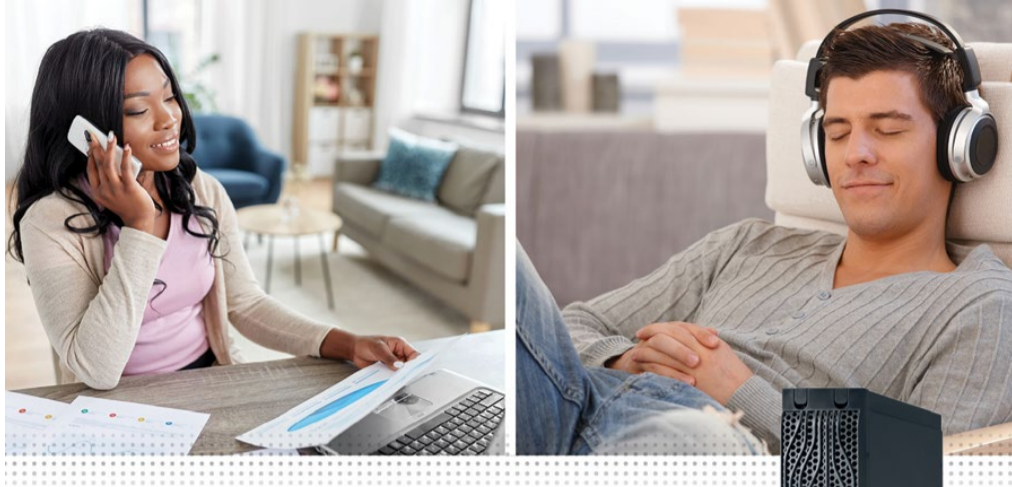
Email kevin.flack@outlook.com

By Kevin Flack

Typical cascade table:

MCCB Feeder	Downstream MCCB 20 kA	Downstream MCCB 15 kA	Downstream MCCB 10 kA
Model: U 3/4P	Model: S	Model: S	Model: S
Rated: 20 kA	Rated: 5 kA	Rated: 5 kA	Rated: 5 kA
Amps: 100-160 A	Amps: 1-120 A	Amps: 1-120 A	Amps: 1-120 A
	Cascade: 1P only	Cascade: 1P +3/4P	Cascade: Full range

Work can go on, even during a power outage



UPS UNINTERRUPTIBLE POWER SUPPLY

LINE INTERACTIVE

UP TO 3 KVA
Ideal protection for:

- Individual workstations or home office
- Telephone switchboards
- Residential applications



It has been well over a year since COVID-19 was identified in Africa and during this time of crisis, the region has seen more and more businesses encouraging staff to work from the safety of their homes.

But this *modus operandi* comes with its own challenges – especially in South Africa, where unexpected power outages and scheduled loadshedding are increasingly common.

When the power goes out, it is important for everyone to be able to keep working – time is money, even in a home office.

According to Legrand specialists, it is easy to overcome the problems of power failures by investing in an uninterruptible power supply (UPS) system. This nifty device ensures the continuity of service of essential electrical equipment, like Wi-Fi routers, PCs and security systems.

A UPS system allows computers, the internet server and other home office equipment to continue operating even when the power goes out. And apart from allowing the user to keep working during a power outage, the UPS system also prevents data loss and ensures there is no damage to equipment when the power goes off unexpectedly.

With a UPS, it is also possible to save changes to documents during a power failure, or to make backups of files and save data to a hard drive or cloud storage system. A UPS system is also designed to protect computers and other electronic equipment from surges in electricity as the power goes off and back on, by maintaining a steady flow of power to machines. There is no longer the need to stress about power variances that could cause an interruption of power or a complete shutdown of the home office.

Legrand's UPS solutions for the home environment do it all. These compact devices are easy to install and configure and not only provide reliable power in the event of a power outage or loadshedding, but also protect office equipment, data and processes.

This range includes high-performance Keor single-phase (SP) UPS line interactive VI units, from 0,6 to 2 kVA and Keor Line RT devices which are single-phase UPS line interactive VI-SS units, from 1 to 3 kVA.

The Legrand design team has incorporated the latest technologies into these new advanced UPS solutions. What's notable is energy-efficiency – a big bonus as electricity costs continue to escalate – and an intelligent battery charging system which extends the system's service life. In addition to minimising UPS consumption and operating costs significantly, Legrand's UPS devices are designed to reduce the environmental impact of battery disposal.

Legrand Keor single-phase (SP) units feature a three-colour LED bar that provides monitoring of the UPS status; a mute button; internal automatic voltage regulator (AVR); USB port, and international output sockets.

Characteristics of Keor Line RT devices include a single-phase UPS reversible rack/tower for power from 1 000 to 3 000 VA; a perfectly sinusoidal output waveform; VI line-interactive; a boost and buck AVR converter; control by microprocessor, and a battery that is easy to replace. Other features are an RS232 communication port; LAN / SNMP connectivity; LCD display; an integrated self-test function and advanced management of battery discharge. This system offers dependable protection against voltage peaks, overloads and short-circuits. There is also internet modem/LAN protection and the option of DC start-up.

Apart from efficient solutions for the home office, Legrand also offers UPS systems with specific design characteristics for other installations including offices; data centres; shopping centres (especially cash registers); hospitals; medical centres, and hotels. Other applications are in factories, warehouses and airports, as well as in rail and ship transport.

Enquiries: +27 (0) 11 444 7971

CSIR releases for statistics for first half of 2021

The Council for Scientific and Industrial Research (CSIR) has released a half-year update of its periodic annual statistics on utility-scale power generation focussing on the first-half of 2021 (H1-2021). The H1-2021 statistics showed that system demand increased by 5.0% in H1-2021 relative to H1-2020 but was 2.2% lower than H1-2019. Based on data originally published by Eskom, insights are provided on technology specific daily, weekly and monthly electricity production, actual loadshedding experienced as well as flexibility needs of the power system.

South Africa experienced loadshedding for 650 hours in H1-2021 (15% of the time) wherein 963 GWh of estimated energy was shed (mostly Stage 2 loadshedding). This is 76% of the total loadshedding experienced during 2020. A concerning shift of the unplanned outage component of the EAF has also been highlighted where unplanned outages of up to 15 300 MW were experienced and were greater than 10 000 MW for more than 80% of H1-2021.

Download the report at www.csir.co.za

'Powering up' the African connection

Alexander and Poole, a long-standing manufacturing enterprise and sole African distributor of Anderson Power Products' (APP's) quality electrical connectors that are renowned to achieve the highest levels of durability and performance, continuously strives to enhance its solutions offering to industry.

To power up awareness of APP's pioneering and innovative role in electrical connectors, its product offering and technology excellence to Africa, Alexander and Poole – together with APP – are boosting their long-standing and key partnership to grow the APP footprint and product profile in different target sectors locally.

Alexander and Poole, founded over four decades ago, is instrumental to this growth by currently focusing on a concerted sales and marketing effort to drive awareness around the APP product range, says Juanita Fisher-Hill, National Sales Manager for Alexander and Poole, responsible for the sale and distribution of APP products in South Africa.

"APP and Alexander and Poole's very solid relationship, which has been nurtured for more than 37 years, has gone from strength to strength," adds Chris Mason, Regional Sales Manager for Anderson Power Products in the UK, highlighting that mutual company successes from this partnership investment include a clear drive and strategy in terms of activity – and focus on specific market segments to build market growth.

Mason further explains: "Where traditionally APP – and Alexander and Poole locally – were focused on material handling, some new changes include a market expansion and the consideration of other market segments to drive activity. These include the solar, commercial and consumer markets – with specific requirements, such as in the 4X4 market, the electro mobility (e-mobility) and energy sectors; as well as the data communication sectors."

In addition, Mason notes that APP and Alexander and Poole are also achieving increased sales success, with targets in 2020 being successfully met, and growth exceeding that of the previous year.

Fisher-Hill agrees, highlighting that Alexander and Poole achieved several record months for sales (turnover) since the notable record month of November 2020.

Power pioneer

APP, as an international ISO 9001-certified manufacturer and developer of high quality, cost-effective power interconnect solutions for industries, offers innovative, state-of-the-art electrical power connector solutions.

"This, combined with a long-standing reputation for reliable and rugged connectors, and through long-standing distributor partnerships – such as the one with Alexander and Poole – APP offers full service support – from concept sketches, 3D models to working prototypes, to full production volumes."

"We will also guide customers to select the right connector based on specified criteria, provide engineering expertise coupled with a safety agency-certified team of qualified laboratory technicians and provide full support to customers' visions," Mason explains. "Meanwhile, APP has excellent knowledge in understanding safety standards and the specific performance required for various markets and geographic regions – having exceptionally trained and qualified associates which provide high-quality products in line with ISO 9001-certification," he says.

"This quality offering is supported by excellent customer service from distributors such as Alexander and Poole, which provides exceptional technical and ordering support.

In addition, multiple manufacturing and distributor locations globally allow for a shorter lead time – from order placement to receipt of product – and help to streamline logistics and international shipping costs," Mason adds.

Powerful connections

As a power pioneer, APP builds on a decades-long reputation of innovation in the manufacture



Juanita Fisher-Hill, National Sales Manager for Alexander and Poole.

of power connections: particularly around the electrical connector and its flat wiping technology design.

Mason explains that the technology, invented in 1953, offers a powerful connection capability by ensuring consistent connector contact. The technology comprises stainless steel springs that provide a constant contact force while the silver-plated pure copper contacts have tips which absorb arcing damage when the connectors mate.

"Because of the material used, APP expects its contacts to perform at 10 000 cycles and more in their lifetime," he highlights, emphasising that the differentiator to APP's offering lies in proof-of-concept and consistency of performance.

Alexander and Poole's efforts locally highlight this product reliability and consistency, with Fisher-Hill proactively reaching out to the local market through enhanced market communication, technical training for customers on APP products, and customer support – backed by 24/7 assistance from Mason.

"It is Alexander and Poole's objective to make each customer feel valued and heard, through the provision of customised product solutions to fit their specific needs," Fisher-Hill notes.

Powerful partner

Mason adds that Alexander and Poole forms part of a strong value channel in being the 'face' of APP and providing the expertise and knowledge locally.

"The right partner of choice is critical and Alexander and Poole is small enough to be flexible and fluid in meeting needs; but large enough in terms of reputation and market positioning to liaise with larger organisations."

In anticipating how Alexander and Poole's concerted efforts as sole distributor to grow APP's footprint locally will progress, Fisher-Hill says consistent communication and interaction, as well as determination to achieve business growth is key.

Mason agrees, concluding that: "The investment from APP and Alexander and Poole as our sole distributor in South Africa, in enhancing internal processes, systems, order placements and pricing will create a solid foundation on which to successfully build a lasting business which will not only sustain growth, but ensure many 'powerfully connected' customers going forward!"

About Alexander and Poole

Established over four decades ago, Alexander and Poole has become synonymous with quality throughout the mining, industrial and materials handling sectors. As a proudly second-generation South African enterprise, the company originally had two principal agencies, one of which – Anderson Power Products – remains today, with Alexander and Poole as the sole African distributor thereof. APP is an international leader in high-power interconnect solutions.

Enquiries: www.poole.co.za

Keeping Africa's largest distribution facilities 'switched on'

Finding both energy and cost-efficient solutions to the operational challenges that the warehousing and distribution sector currently faces across Africa is a high priority, particularly for the continent's retail giants.

South Africa's national utility has been under immense strain in recent years, with ongoing load shedding causing continuous outages across the country. Alternative power management solutions have become crucial, particularly for large retailers that need to ensure optimum shelf life for perishable goods in cold storage.

Having recently opened its 123,000 m² Whitey Basson Distribution Park in the Western Cape, Shoprite – Africa's largest food retailer – had to find the right switchgear solution for its most technologically advanced distribution centre, consisting of three warehouses, one of which is completely devoted to cold storage.

"At the time the facility was designed, load shedding was causing an average of two power outages a day in the Cape Town area and at this rate, conventional switchgear that generally lasts between 2 000 and 3 000 operations would need to be replaced every three to four years. Shoprite would have incurred additional maintenance costs due to the unplanned outages. The installed Eaton Xiria E switchgear offering the user more operations, has helped to alleviate this, says Marcel Buckner, ESS Business Development Manager for Eaton Africa.

Working with global power management solution company, Eaton, engineering professional services consulting firm, WSP Africa, developed a medium voltage (MV) power distribution system using Eaton's innovative Xiria E extendible -type switchgear.

This would provide a 10 000-operation switchgear solution, also allowing for a more flexible power distribution system with a broad range of protection and control options, and the possibility for future extensions of the secondary switchgear system.

Saverio Talotti, Regional Director at WSP Africa explains that Eaton's Xiria E MV switchgear made the most sense economically, "both in terms of up-front costs and total cost of ownership – and made a huge difference that had a major impact on project and future cost."

"Eaton's vacuum interrupters are maintenance free and are certified up to 30 000 operation cycles. The Xiria E MV switchgear also offers a lower total cost of ownership in comparison to SF6 contained switchgear. Xiria systems, materials and components are also all recyclable at end of life.

As sustainability continues to become an increasingly



Marcel Buckner, ESS Business Development Manager for Eaton Africa.

important issue in the electric power industry, the move to SF6-free switchgear is an imperative step towards lowering greenhouse gas emissions, and the retail sector also has a role to play in reducing environmental impact."

The electricity industry uses approximately 80 percent of all sulphur hexafluoride (SF6) produced in the world, while end-of-life disposal of SF6 switchgear in South Africa can run upwards of 25 percent of the original cost of the equipment thus adding immensely to the total cost of ownership (TCO). To add to the problem, SF6 is 23 500 times more potent than carbon dioxide and tops the list of the most harmful greenhouse gases, remaining in the atmosphere for 3 200 years with a global warming potential (GWP) of around 22 800.

"Solutions like these can and should define the future of warehousing and distribution across sectors," says Eaton's Buckner. "Ongoing support is also vital for interventions like these to be successful. That's why Eaton will be providing the Shoprite Group with ongoing technical support, which includes emergency intervention, maintenance, and life-extension services, as this will continue to ensure the system design is a sustainable solution for the Group."

Enquiries: www.eaton.com/za

Growing niche for dry-type transformers in oil, gas projects



Demanding safety requirements in the oil and gas sector are being met by custom-designed dry-type transformers from specialist company Trafo Power Solutions.

"We are seeing growing success in the application of dry-type transformer technology in this industry, where all equipment must be safe to use in hazardous areas," says David Claassen, Trafo Power Solution's managing director. "Being air-cooled, these transformers are a safe alternative to conventional transformers, which generally use oil as their coolant medium."

Oil presents risks of explosion, fire and environmental damage while dry-type transformers, by contrast, can be installed indoors, in confined spaces and in proximity to operational areas where people are present.

"Through our strategic partnership with leading transformer manufacturer TMC Transformers in Italy, we can design, supply and install fit-for-purpose solutions for hazardous areas," says Claassen. "TMC's facili-

ties include state-of-the-art technology and capability, and allow us to compete with the best quality and range available globally."

In one of Trafo Power Solution's largest projects to date, it is partnering with TMC Transformers to supply the world-class Mozambique liquid natural gas (LNG) project in that country's northern Cabo Delgado province. Eighteen dry-type transformers are already on site, inside modular substations for the project's first construction camp of about 9 500 contractors.

Also being supplied are 20 specialised dry-type transformers for the project's gas plant, delivering features that only a few players in the global transformer sector could deliver.

"These 400 kVA to 1600 kVA transformers will be housed in IP56 enclosures, equipping them for high levels of ingress protection," he says.

Enquiries: www.trafo.co.za

Recharger expands consumer options with prepaid electricity consumption and speedy, efficient delivery

Recharger is proud to present its Recharger Brands Store on South Africa's premier e-commerce site, Takealot. "This gives our offering even greater credibility on Takealot, as a trusted brand," explains Shaun Clarke, Senior Marketing Strategist. "Recharger had to undergo a vetting process by Takealot before being able to set up a Brands Store, which involved the checking of the company's credentials and products before being allowed to set up the Brands Store on the site.

"Being able to offer Recharger products on Takealot, South Africa's largest online retailer, offers great advantages for purchasers, including the fact that the site is a familiar and widely-used platform that offers ease of process as well as quick delivery or collection of purchases nationwide. Other benefits of Recharger include our unmatched after-sales service, as well as the fact that we are the only local prepaid electricity sub-meter company to offer a life-time warranty on selected sub-meters."

The prepaid sub-meters offered in Recharger's range are all of international standard, as well as STS (Standard Transfer Specification) certified. The STS standard provides compatibility between certified STS-compliant electricity dispensers and vending systems in the electricity dispensing industry to the benefit of the customer, distributor and agent.

All Recharger sub-meters must be installed independently by registered electricians. Recharger prepaid sub-meters are used in homes, cottages, apartment blocks, retail stores and holiday rentals across the country to easily monitor and manage electricity consumption.

"Recharger supplies a comprehensive range of three-phase and

single-phase electricity sub-meters, which is reflected in our selection on our Takealot Brands Store. We are highly experienced in assisting our clients to select the correct sub-meter for their needs," says Clarke. Residential homes are usually served by a single-phase power supply, while commercial and industrial facilities typically use a three-phase supply. "When users are able to pay upfront for their energy needs, this assists in eliminating large and unexpected monthly bills, and so, by installing a prepaid electricity sub-meter, anyone can work smarter in measuring and monitoring their electricity consumption."

Currently, Recharger is the only prepaid electricity sub-meter company with a brand store on Takealot. The Brands Store can be found at www.takealot.com/promotion/rechargerstore

About Recharger Prepaid Meters

Recharger is South Africa's leading supplier of prepaid electricity sub-meters, tokens and token vending solutions. More than 200 000 Recharger meters have been installed for both local and international commercial, industrial and residential clients.

With a comprehensive range of meters, including three- and single-phase, split, wired, and wireless options, Recharger's prepaid metering solutions are of international standard, as well as being Standard Transfer Specification (STS) compliant. Recharger is also proud to be the only organisation of its type to offer a lifetime warranty on certain products.

Enquiries: www.recharger.co.za

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Complete LED lighting solution for Polokwane taxi ranks

BEKA Schröder is proud to have supplied the LED solar lighting solution for two popular taxi ranks in Polokwane.

The City of Polokwane wanted to install a lighting solution at the busy Spar and Pick 'n Pay taxi ranks, to increase safety for its commuters at night. Furthermore, this lighting installation had to continue operating during power outages.

General area lighting

The BEKA SOLAR was the chosen lighting solution for the general area lighting installed around the taxi ranks. This South African designed and manufactured LED streetlight for outdoor residential and public applications offers a full customisable option to suit all off-grid solar lighting requirements. It has been designed to operate reliably at a high light output over a 12 to 14-hour period, and to be theft and vandal resistant.

It has sufficient autonomy to cater for up to four continuous overcast or rainy days, to continue its reliable night operation.

The BEKA SOLAR, combined with the ZIYA luminaire, provides a reliable lighting solution with a high Ingress Protection level that withstands high ambient temperatures and vandalism. These luminaires are a sustainable off-grid performer with a superior lumen/Watt ratio. Various battery technologies are available to meet specific customer requirements.

The BEKA SOLAR offers a renewable lighting solution to operate in any of our very challenging African environmental conditions.

Parking bay under-canopy lighting

The Roughguard LED has been installed underneath the

parking bay canopies for general area lighting. This vandal-resistant linear LED luminaire has been designed and manufactured in South Africa, to be used in industrial corrosive and harsh environments. It is available in two sizes for application flexibility.

With applications like police stations and prison cells, railway stations, underground parking areas, mining workshops and others, where vandalism and corrosive elements are prevalent, the ROUGHGUARD LED is able to not only withstand these environments, but also to provide light exactly where it is needed.

Ablution blocks

The South African designed and manufactured BEKA SERIES 30 LED bulkheads were installed outside the ablution blocks to provide general area lighting.

Due to its timeless and simple design, the BEKA SERIES 30 is the ideal solution to beautify buildings and to provide area lighting for commercial developments, retail areas, shopping malls and public buildings. High-quality materials are used to ensure a high ingress protection and non-discolouring diffuser. This, together with the long lifetime of the LEDs, and an easy installation procedure, makes the BEKA SERIES 30 the bulkhead of choice.

BEKA Schröder locally develops and manufactures sustainable LED lighting products, designed and suitable for local conditions. The company is proud to be associated with Livit8 Eco Engineers and the City of Polokwane in providing a complete LED lighting solution for this project.

Enquiries: +27 (0)11 238 0056



SHEDDING LIGHT WITH PHILIP HAMMOND

How to produce a professional lighting design

At the conclusion of my article last month, I said that I would explain how EVE (Equivalent Visual Efficiency) was calculated and that I would also explain more about how this can be included in your calculation manager in Relux Desktop to ensure that your calculated illuminance levels will be correct. Of course, there are a number of other settings within Relux Desktop that must also be correct to be certain that your illuminance results in your lighting design report will be correct.

Before I do that, I need to explain how the EVE factor is calculated. Remember that a photometer, or what some call a lux meter, only measures photopic light or the light for daytime vision. There is, however, also the need to measure scotopic light, which is our night-time vision. The problem is that a standard photometer cannot measure for scotopic light.

A spectrometer is used to measure both photopic and scotopic light. Once the measurements are known for a particular light source, whether it is fluorescent, mercury vapour, LED or any other type, the scotopic/photopic (S/P) ratio can be calculated.

Once that has been calculated, we are able to use tables in the IES TM-24-13 document to determine the EVE, which will also vary according to the Correlated Colour Temperature (CCT). In other words, a warm white or 3000 K LED light will typically have an EVE of 1,1; a 4000 K LED light would have an EVE of 0,88; a 5000 K would be 0,82 and a 6000 K would be 0,75. The values are for high quality LED products and can vary from product to product depending on the quality and the consistency of the CCT measurement.

Once we have determined the correct EVE for the CCT that will be used, it is time to refer to the applicable standard to be used for an office environment activity.

Assuming that the primary task area on the workstations is to be 300 lux, we then refer to the tables in IES TM-24-13, which apply to areas where visually demanding tasks are performed. For example, a 4000 K LED is used and the age of the occupants is between 25 and 65 years, the IES category is Q for the application and the target illuminance value should then be 340 lux. Now, multiply 340 lux

by 0,88 (EVE factor) = 299,2 lux, which is bang-on to the illuminance value in the standards.

The working area immediately adjacent to the primary task work plane is referred to as the secondary task area. It should be 60% of the illuminance value of the primary task area, which would be 207 lux and all other areas should be no less than 100 lux. The same EVE factor should be applied to these target illuminance levels as well.

Remember that these illuminance values for the primary and secondary task areas must be applied to every workstation in the office. This has to be applied in the lighting design software being used. Not all lighting design software can be set to perform these calculations. We recommend using the latest version of ReluxDesktop software.

The key is being able to measure the accurate S/P ratio of the LED light source/luminaire being used. A spectrometer is needed to do that. Spectrometers can vary in price from around R15 000 to R80 000. Essentially, to be able to produce professional lighting designs, three critical criteria must be met:

- Must have a sound knowledge and understanding of light and lighting, including standards and regulations.
- Must have a very high level of proficiency in the use of lighting design software to be able to include the EVE factor in all lighting calculations.
- Must have knowledge and understanding of the correct techniques to be used to measure light with a spectrometer. This includes the recording of all measurements as part of the Measurement and Verification process.

Lighting design is challenging and far more complex today than it has ever been in my more than 50 years' experience.

Next month, I will conclude the series by explaining Circadian Light (CLA) and Circadian Stimulus (CS) and how to measure these including incorporation of these measurements in lighting design software.

I will gladly assist any of the readers who would like more details about this topic and methodology.

Enquiries: phil@bhalighting.co.za

The world's largest indoor racing track illuminated by LEDVANCE

The right light is essential for achieving maximum performance and safety when 36 go-karts are racing together in 22 bends over a distance of 1 200 m.

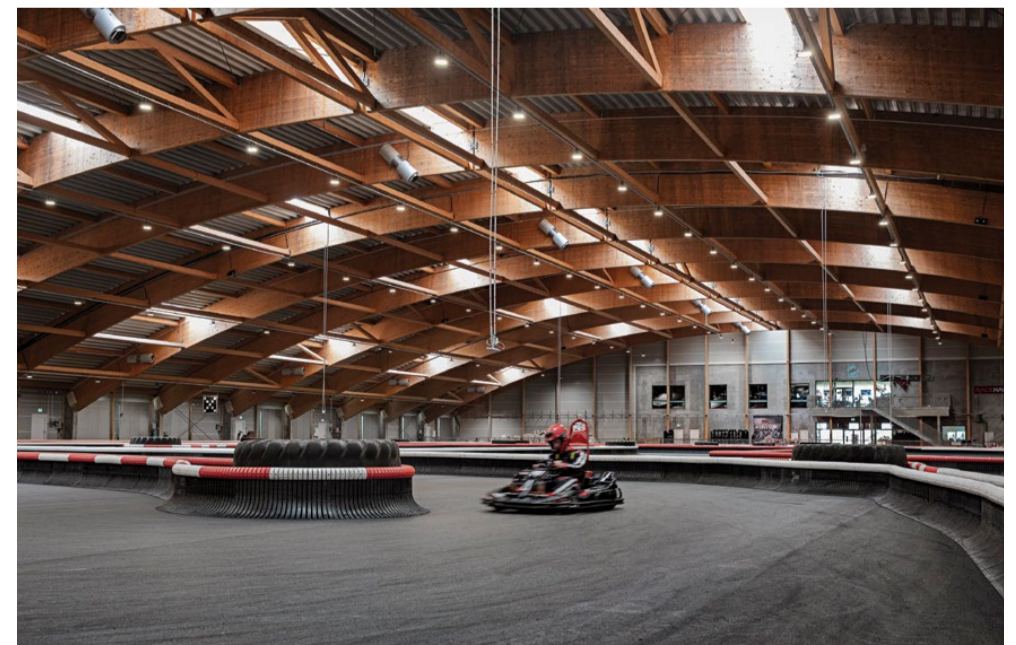
Acceleration, adrenaline, concentration. The world's largest indoor go-kart racing track aims to provide the ultimate customer experience. High visual lighting comfort in the racing area ensures the perfect conditions for drivers, making the experience even better. Bad uniformity, too little light, flicker or stroboscopic effects, on the other hand, could lead to serious consequences. High-speed indoor go-karting needs high-end lighting solutions. Racehall Copenhagen has recently built the world's largest indoor 1 200 m long go-kart racing track. Lyskoncept, the leader of the Racehall project and LEDVANCE took up together in close cooperation the challenge to fulfill all the requirements from DIN EN 12193 for sports facility lighting and the wishes of Racehall themselves to support unique atmosphere of race hall.

LEDVANCE luminaire High Bay 95 W with 13 000 Lumen and beam angle of 90° was the perfect solution for a powerful and uniform light in the go-kart race area of Racehall. In the restaurant

Panel 600 luminaires with a reduced glare of UGR < 19 were installed to provide a basic lighting. The same Panel luminaires were used in the meeting and the briefing rooms. The toilets and the walking area were equipped with Downlight ALU luminaires. Linear Ultra Output luminaires were selected for the go-kart garage to provide a clear light. The beautiful red façade of the Racehall building was illuminated with decorative LED strips and control gears from LEDVANCE. "LEDVANCE was able to support this important project with the right technical know-how, lighting design and quality to meet my customers' expectations," says Henrik Kristensen, Managing Director of Lyskoncept.

With direct contact to Racehall, the lighting specialist, Lyskoncept, was leading the project. In close collaboration with LEDVANCE, the parties managed to design a completely new LED lighting solution for the Racehall. The main attraction is the go-kart racing area, but the adjacent facilities like the restaurant, meeting rooms, video rooms, the reception area and the go-kart garage are important as well.

Enquiries: www.ledvance.com





Security lighting Q&A

As an electrical contractor, you will often be asked by homeowners to give advice on security lighting. Radiant Lighting has compiled a list of frequently asked questions to help you address your client's queries.

How does exterior lighting act as a security measure?

A strategically illuminated home exterior deters would-be intruders because it eliminates dark corners for them to hide in. They're automatically more visible to those looking out from inside the house as well as to passers-by.

Lighting the exterior of my home can increase my electricity bill. How do I prevent this from happening?

Leaving exterior lights on through the night can work out costly. For this reason, motion sensor lights, solar fixtures, and fixtures set to a timer are best. Motion sensor lights only turn on when movement is detected. This sudden flash of light should scare intruders away immediately. It will also catch your eye and alert you from inside the home. Solar lights charge up during the day using power from the sun, which is stored in an internal battery. At night, this stored energy is used to power up the fixture. Setting your lights to a timer not only lowers your electricity bill but also creates the illusion that someone is home. This is a great strategy if you're away for a few days or are working late. Another option is to use LED fixtures. They don't use as much power as traditional bulbs, resulting in a comparatively lower electricity bill.

What is the best location for floodlights?

If floodlights are not positioned well, they can cause an unpleasant glare for both you and your neighbours. You may think that installing them close to a point of entry will be most effective, but the opposite is true. Blinding light in this location creates deep shadows in other parts of the garden. Mount your floodlight up along the roofline. This way, the beam covers a larger area of the garden and the fixture is less likely to be tampered with.

LEDs to enhance road safety and improve driving experience

Signify will enhance road safety and improve the driving experience in Stockholm's E4 Bypass tunnel, connecting the northern and southern parts of Stockholm County. Of the road's 21 km, more than 18 km will be in a tunnel, making it one of the longest road tunnels in Europe, and one of Sweden's largest and most prestigious infrastructure projects to date.

While it is true that there is always light at the end of the tunnel, the quality of the lighting on the road at each end of the tunnel, and the lighting within the tunnel, is hugely important. The perfect combination of uniform lighting with limited glare and seamless transition on entering and exiting the tunnel are essential for the comfort, visibility, safety, and overall experience for drivers.

"The reason we chose Signify as the supplier for this project is because they had the best and most affordable solution, that meets all requirements for this project. In addition to easy-to-install, efficient and high-quality luminaires, the control system is a proven, reliable solution for tunnels," says Anders Ingels, Installation partner, Bravida.

Signify will supply high-quality energy-efficient LED luminaires across this project. Specially designed Philips TubePoint Gen 2 tunnel luminaires will be installed throughout the 18 km of tunnel, while Philips Luma Gen 2 streetlights will be installed along the 3 km of road outside of the tunnel. Being LED, the long lifetime reduces maintenance requirements and its high lumen per watt ratio at system level reduces operational costs, and improves the overall total cost of ownership at the same time.

Enquiries: www.signify.com

What colour bulb should I choose for my outdoor fixtures?

Bright white bulbs are going to be most effective for outdoor security lighting purposes. While coloured bulbs may look pretty, they have a distorting effect on how your garden looks and this makes it challenging to spot intruders approaching your home.

Which is better – one bright light or multiple lights of lower brightness? One light will cause unwanted shadows for criminals to hide in. Rather opt for multiple fixtures with a lower level of brightness, so that more of your exterior is bathed in light.

Enquiries: www.radiant.co.za



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40+
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The South-African designed and manufactured OMNIBLAST-E MIDI is the ideal tool for **sports venues and other large area applications** that require a lighting solution with **the highest efficiency and flexibility** to adapt to the different lighting needs. Available in two sizes and part of the bigger OMNIBLAST-E family, this LED solution offers an alternative with proven benefits for traditional fixtures fitted with 250W to 600W HID lamps. The OMNIBLAST-E guarantees a **perfect glare control, a high colour rendering index (CRI) and provides flicker-free lighting**. It is also available in Zone 21 and 22 versions.



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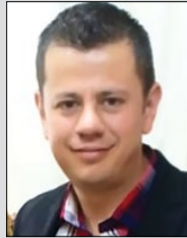
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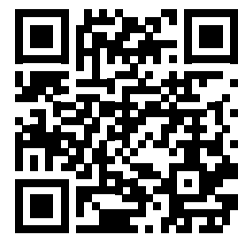
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BRIGHT SPARK

CAR CONUNDRUM

A man raced his car through the streets with his wife as his only passenger. When they stopped, the husband got out of the car. When he returned, his found his wife dead and a stranger in the car. What had happened?

SEPTEMBER SOLUTION

The woman was visiting a zoo.

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- Standby and emergency power
- Lighting

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- Standby and emergency power

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- Tools of the trade
- Lighting

Buyers' guide

- Lighting (Luminaires)

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