



See what prizes  
are up for grabs

SCAN QR CODE TO ACCESS  
ENTRY FORM



### CLOSING DATE

ENTRIES CLOSE AT END OF  
BUSINESS ON 12 JANUARY 2024

# GEAR UP

WITH HIGH-PERFORMANCE PRIZES  
FROM OUR LOYAL CUSTOMERS

LEDVANCE

POWER  
THROUGH  
LIGHT

As 2023 comes to its end, *Sparks Electrical News* offers our readers the opportunity to start the new year on a positive note. We have teamed up with South Africa's leading electrical companies who have donated great prizes. Don't delay - entry is simple, so complete the form and stand the chance to win!

## HOW TO ENTER

Entering the competition is simple:

1. Scan the QR code on this page to go straight to the competition entry form.
2. Log onto the Sparks website - [www.sparkselectricalnewsmagazine.co.za](http://www.sparkselectricalnewsmagazine.co.za) - and click on the competition banner at the top of the page.
3. Email your name, company, postal address and contact number to [sparks@crowm.co.za](mailto:sparks@crowm.co.za).



## DRAW

All entries received will go into the draw that will be conducted in January 2024. Winners will be notified by email and the names of the winners will be published in the February 2024 issue of *Sparks Electrical News*.

## CLOSING DATE

ENTRIES CLOSE ON 12 JANUARY 2024



# HellermannTyton



THE CABLE ACCESSORY COMPANY



## WHAT COULD YOU WIN?

### Comtest

2 x Fluke TLK-225 Master Accessory Kit

- Test leads are an integral part of the complete measurement system. Worn-out test leads can cause inaccurate readings and pose a serious shock or electrocution hazard. The Fluke TLK-225 SureGrip Master Accessory Set with 13 tools is the perfect replacement kit that provides flexibility and comfort with all SureGrip leads and probes in a convenient six-pocket, roll-up pouch.

### Crabtree

1 x Hamper including various Crabtree products.

### HellermannTyton

1 x Hamper including:

- INSULOK cable ties
- Insulated screwdriver kit

- Compact digital multimeter 600V
- Multipurpose lubricant
- Red and blue electrical insulation tape
- Helacons
- Hardcover HellermannTyton notebook
- HellermannTyton gaming mouse pad

### Ledvance

1 x Hamper including:

- Volcano Bluetooth speaker
- Volcano laptop backpack
- Ledvance Vintage 1906 bubble pendant
- Ledvance Vintage 1906 single cone spot
- Ledvance Vintage 1906 double cone spot
- 2 x Ledvance Vintage 1906 LED globes

### Radiant

- 1 x 12-piece Electrician's screwdriver set consisting of: 6" long-nose pliers, 6" diagonal cutting pliers, 10" water pump pliers, 4x slotted screwdrivers, 3x cross screwdrivers, 200-250v voltage tester.

### Synerji

1 x 3.6 kilowatt Axpert inverter.

### Three-D Agencies

2 x UT61B+ Multimeter

- The UT61B+ is a reliable, true RMS digital multimeter with a display count of 6 000 and can measure up to 1 000V AC/DC.

### Vermont Sales

1 x Toolbox with a Tork Craft steel-constructed cantilever toolbox with the following features:

- Chrome vanadium for long life
- Lockable (excluding keys)
- Double handle carry/opening
- Steel construction
- 5-tray storage space
- \*Tools not included

### Voltex

2 x Kapa Energy Solar Inverter 300W Q300.

- This is a pure sine wave inverter with output ports USB-A (x3), Type C (x1).

### Waco

1 x Hamper of selected items as per photo to the value of R2 500.



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ELECTRICAL



**Vermont Sales**

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of power tool accessories



**voltex**<sup>®</sup>  
your electrical connection<sup>®</sup>



**WACO**<sup>®</sup>  
industrial electrical distributor



## Buy vs Rent: The great solar debate

Having a solar photovoltaic (PV) system installed at home is the only way to truly get around loadshedding and away from electricity SOE Eskom. Cost is the biggest problem holding people back, though, says Dylan Schnetler, Commercial Head for Synapse Ultra at Rubicon.

"When you rent a solar PV system, you agree with a solar service provider to use their equipment for a specified period, and

you gain the right to use the solar system to generate electricity at home. Instead of purchasing a system upfront, you pay a monthly rental. The service providers usually take care of all the maintenance and necessary repairs as part of their contractual obligation."

Remember that you do not own the solar equipment, so the service provider maintains the right to remove the system

if the agreement ends. "Conversely, owning a solar system means you purchasing and installing the system – but it is yours," says Schnetler. "You are also responsible for all maintenance, cleaning and repairs."

### Pros versus cons

#### Option 1: Buying your solar system

##### The pros

- Financial savings: Owning your system benefits you immediately financially as there are no further costs.

- Energy independence: You are less reliant on grid electricity, reducing your vulnerability to outages and rising costs.
- Positive environmental impact: Clean energy from your solar system reduces your carbon footprint.
- Long warranties: Rubicon's Synapse Ultra solar solution comes with a 10-year warranty, and PV panels have a lifespan of up to 30 years.
- Increased property value: Installing a solar system can increase the value of your property by an estimated 15%.
- Customisation and control: You have the freedom to customise your system according to your exact needs.

##### The cons

- High upfront costs: Purchasing a solar system requires a significant upfront investment as components are costly.
- Higher monthly cost if financed: If you finance your solar system through your bank, your monthly repayments could be higher compared to renting a system.
- Responsibility for upkeep: After a certain time, service and maintenance costs will shift to you. Rubicon offers nationwide technical support and component swap out for its Synapse Ultra solution.
- Insurance and warranty considerations: As the owner, you will need to ensure that you have proper insurance coverage, and once the warranty expires, you will be responsible for any maintenance.
- Limited flexibility: Once you install a PV system on your property, it becomes a semi-permanent fixture. If you decide to move or sell your home, you will need to negotiate its value with potential buyers.

#### Option 2: Renting your solar system

##### The pros

- Lower upfront costs: Renting a solar system generally involves minimal or no upfront costs.
- Maintenance and repairs included: When you rent, the solar service provider takes responsibility for maintenance, ensuring that the system operates optimally.
- Transferability: If you are in a rental property or have plans to sell, renting a solar system could be better as ending a rental agreement is straightforward.
- Rent-to-own: Many subscription options are a rent-to-own, where subscribers own the system after a couple of years.

##### The cons

- Long-term cost: While renting has lower upfront costs, in the long run the cumulative rental payments can exceed the cost of purchasing a system outright.
- Annual increases: Rental will increase generally between 5 and 7% per annum.
- Limited control: When you rent a solar system, you have limited control and the service provider handles upkeep, which means you may have less flexibility in choosing the components or upgrading.
- Contractual obligations: Renting often involves signing a contract with specific terms and commitments, such as granting permanent property access.
- No tax incentives: Unlike owning, renting a solar system does not provide access to government incentives or tax benefits.
- No increases in property value: As the solar system is rented, it does not help increase the property's value and new buyers will need to take over the rental, which may complicate the sale.

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

*Wishing you a festive season filled with warmth and lasting connections!*

Thank you for powering up with Voltex this year.

Blessings for a happy and safe holiday,  
and all the best in 2024!



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## WearCheck shares important lubrication tips to maintain your equipment

Condition monitoring specialist WearCheck knows all about managing machines and equipment, and that having your tools in working order is the best way to keep your projects running on time. For that reason, WearCheck is sharing a few handy tips on keeping your machinery lubricated and running smoothly all the time.

### Foam could lead to failure

You do not want your oil and lubricants foaming. A crucial step in managing your oil and lubricants is to check their levels before adding an antifoam product. "Insufficient oil could lead to the formation of a vortex inside the reservoir at the circulating pump's inlet, which will draw in air. If there is too much oil in the circulating system, it could result in oil coming into contact with a surface of the machine that it should not, which could result in slinging the oil," explains WearCheck's technical team.

### Keep it clean

Abrasion could be catastrophic. Particles become work hardened within your tools, which then not only produce more particles, they help harden these new products in a destructive, abrasive cycle. Performing oil checks at specific intervals and doing

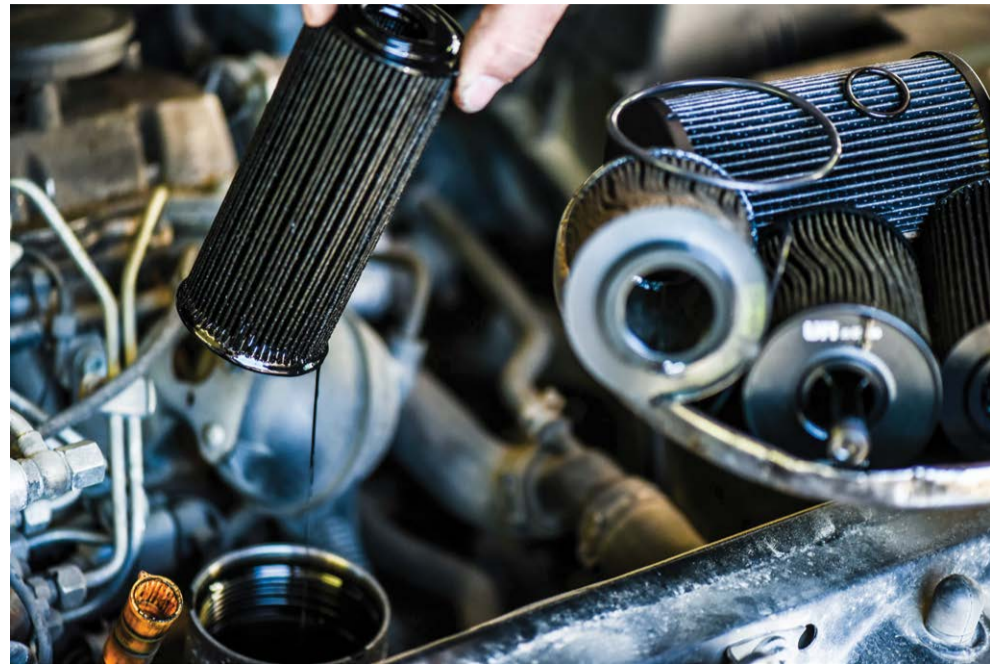
complete oil changes during servicing can assist in keeping your oil particle free and your equipment operating as intended.

### Manage heat and cooling processes

Lubricants can thermally degrade for various reasons, says WearCheck. "Thermal failure can occur in new lubricants with healthy additive packages. However, many of the symptoms of oxidation are also symptoms of thermal degradation." Be aware of potential air leaks or bubbles within your oil – bubbles can become rapidly compressed in the bearings' squeeze zones, which results in high localised temperatures. Ensure your machinery and equipment are sufficiently cooled and that they are operating in a safe environment according to manufacturer specifications.

### Oil levels: Too high, too low

"Low oil level is a serious cause of contamination in a hydraulic system. When the oil level is low, more air gets into the tank, and this often leads to destructive cavitation in the pump and condensation on the tank walls, which generates sludge," warns WearCheck. The resulting sludge decreases the oil's lubricity levels, which leads to scoring and friction,



which in turn leads to hardened abrasive particles mentioned above.

### A dirty filter is a warning sign

When analysing debris found in an oil filter, it is important to know what you are looking at. Larger pieces are indicative of a leak or broken seal, while smaller particles may need to be sent to a laboratory for further inspection.

### Beware of blue engine smoke

Exhaust fumes can vary in colour –

although you should not see any. The biggest sign of a problem is blue smoke as it signals the engine is burning too much oil. "This can be due to poor piston ring control, worn intake valve guides or other causes of high oil ingress into the combustion chamber," says WearCheck. "Blue smoke usually means the engine is heading for serious trouble and that you need to inspect the oil tank, filter and any other pipe and cabling."

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

## WEG motors & drives add new technology to help combat power problems in SA

With the continued energy poverty experienced in South Africa, motors and drives are set to play an even more crucial role in industry's energy solution strategy. WEG Africa has the knowledge and expertise, as well as the technology solutions, to assist businesses in reducing their operating costs while increasing their productivity and guarding their energy security, explains Jaco Brits, Projects & Technical Manager of WEG Africa.

"Electric motors and drives are used across industries to operate myriad equipment, including pumps, mixers, conveyors and other machinery including automated packaging systems," says Brits. "Advancements in drive and motor technology, underpinned by WEG's extensive research and development, have seen substantial improvements in energy efficiency, both equipped with advanced control algorithms to optimise motor performance based on real-time conditions," he explains. "These algorithms assist in ensuring motors operate at peak efficiency levels, even in complex processes."

Upgrading to newer technology and installing higher efficiency motors such as the WEG IE3 or IE4 electric motor will see customers able to significantly lower their energy consumption. Brits says, "By combining high-efficiency motors with WEG variable-speed drives (VSD), better control and optimisation of equipment can be achieved. This ensures that equipment operates at its most energy efficient speed and power level and will reduce operating costs significantly." These factors reduce unnecessary energy consumption during periods of low demand and enhance overall equipment efficiency and performance.

"Incorporating WEG Vectrue technology, new generation WEG drives combine variable frequency, sensorless and closed-loop vector



(with encoder) control techniques in a single product. This facilitates high torque and a fast dynamic response with the self-tuning function allowing automatic configuration of the drive to adjust it to the motor and load in vector modes," Brits says.

With most industries looking at sustainable energy resources, including renewables such as wind and solar, motors and drives will continue to play an important role in facilitating the integration of such systems. VSDs can be used to balance power supply and demand, and ensure stable operation in hybrid energy setups, says Brits.

"Substantial efficiency improvements are possible by leveraging the latest motor and drive technology, and the significant savings in energy consumption more than justify the capital cost of replacing old technology equipment and machinery with higher efficiency technology."

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

## Vert Energy moves to new facility & offers more quality customer service

High-performance power products keep the country's wheels turning amid loadshedding. Engine and generator specialist Vert Energy is doing its best to keep the lights on with its high-performance products.

"The inability of the country's primary electricity supplier to meet demand, has called for the private sector to step up and provide solutions that help keep businesses, educational facilities, hospitals, farms and homes running, even in the event of power outages and loadshedding," says Ryan Robertson, Vert Energy's Sales and Marketing Director.

Vert Energy has expanded its operation significantly since the company's inception in 2011 and has recently moved to larger premises in Modderfontein, Gauteng. "The new 4 500m<sup>2</sup> bespoke facility has been designed with specialised material handling facilities, additional workshops and mezzanine parts stores to optimise our service capabilities," says Robertson. "The expansion is to help us continue to provide high levels of operating efficiency and service delivery throughout the African continent, in line with continued growth of the business."

Vert Energy's focus is on electric power generation, delivering solutions for various applications. "Our product range can be used for diesel, petrol, gas, steam, hydro and PV-hybrid applications. One of the strongest drivers in our product selection has been to opt for environmentally conscious class-rated products that optimise fuel consumption,

reduce emissions and boost energy savings across our diesel and petrol engine ranges," explains Robertson. "Our team of service engineers and product specialists offer a dependable technical advisory service when product selection is required and a skilled engineering support service to ensure a seamless power generation experience from purchase through to commissioning."

Vert Energy's range of quality branded products includes AGG and Yanmar engines, Leroy Somer EPG, NSM 2 pole alternators for portable products, DEIF power management controllers, lighting towers and load banks. "During 2023, we added to our portfolio, including AGG diesel engines that offer a range that extends from 16kW to 800kW," he says, adding that the delivery of a Tier3 engine is a first, where most other products in this power band are sold as a non-regulated emission engine.

"We also launched our own range of Vert Industrial Power Products. They are available in diesel and petrol options, and conform to emission regulations," says Robertson. Vert also supplies portable pump sets in 50 and 80mm, 80 and 100mm trash pumps, and polypropylene chemical pumps, powered by Vert 4.5kW petrol engines. "Our portable power products are used in every sector and application from home and small office, to construction and agriculture. Our products represent the ideal tool to implement alternative storage and generation capacity to your business."

Enquiries: [www.vertenergy.africa](http://www.vertenergy.africa)



## Electrobase CEO signs off the year with business success & an awards event

Independent electrical wholesaler group, Electrobase, recently hosted its first awards event since 2019, switching from the corporate feel of the past to something a little more celebratory: A golf day and awards gala at the exclusive Zimbali golf estate in Balito, Durban. "Belonging to Electrobase, being a member of this organisation, is important," says Electrobase Chief Executive Officer (CEO) Anthony Lloyd. "Electrobase is a huge supporter of local companies, and we are

always interested in local companies that invest in our country, bringing job creation and new product development to South Africa."

### Home base

Lloyd is also CEO of Enerji Electrical, which holds the brand of Synerji that is sold exclusively through Electrobase's registered wholesalers. "We maintain a high standard when it comes to products, not only as Electrobase but also as Enerji.

It is important when customers purchase products from us and our members, that they are getting the quality they are paying for. The specifications on the product packaging needs to be matched by product performance." For this reason, Enerji has quality control protocols in place at its products' place of manufacture, as well as in South Africa. "Products are assessed and tested before packaging and leaving the factory. Quality is key for us, and we pride ourselves on delivering products of

the highest standards," says Lloyd.

The company recently upgraded its warehouse with an entirely new storage system, which Lloyd says has been worth the hard work. "We have over 700 line items in our warehouse. In a perfect world, we would hold stock of all 700+ products, but there are various factors that make this difficult, such as the delays and inefficiencies at South Africa's ports and the rand-dollar exchange rate." He adds that when he flew into Durban recently, "There were about 40 container ships just waiting to be allowed into the port. That impacts anyone's business when you have stock sitting on the water and not in your warehouse or shops."

### A seasoned campaigner

The CEO has extensive knowledge of the industry, and he has been part of the electrical world since 1991 when he was 20. "I did every job, from sweeping floors to packing boxes and pulling stock. When the opportunity to grow came along, I could not say no. Within 18 months, I became Dispatch Manager. I was noticed because customers were coming to me first with queries rather than the company Sales Manager. I was immediately sent out on the road as a rep and that lasted about seven years before I resigned."

Lloyd took a new direction in business and spent eight months in Mozambique doing wiring before being contacted by a client - Blankfield Industries, who then became Radiant - who wanted him to join their team. "I was freelancing for them from 1998 to 2000, then I joined them on contract. I was there for five years as a travelling rep before being promoted to sales manager, which did not last too long - I was quickly recruited as Regional Sales Manager at Radiant, which was then upgraded to National Sales Manager." Lloyd stayed there until 2009, when he moved to another company, only to be brought back seven months later as Divisional Marketing & Sales Director. "I was there for another three years and left to do my own thing for about 18 months. Then, in 2013, I decided to join Eurolux, who wanted me to head up the creation of its electrical division. Within six months, I was asked to take over the wholesale division, and subsequently promoted to Sales Manager, where I stayed until 2019."

The merge between Eurolux and Radiant saw him appointed as General Manager, taking over the lead at the Johannesburg side of the business. "From there I was promoted to Executive Director in April 2022. I then decided in early 2023 to join Enerji Electrical and Electrobase."

The Enerji Electrical CEO ends off with a somewhat mixed outlook towards 2024, saying, "It is going to be a challenging and tough year. But there is hope because we are a resilient industry, and we are not afraid to knuckle down and work hard. We are ready for 2024 and a few big changes are coming our way. Thank you to all the Electrobase members, our customer base and the industry for their support over the past 30 years."

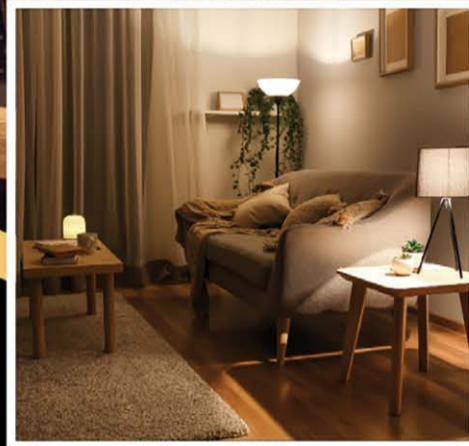
**Enerji has offices and warehouses in Johannesburg and Cape Town.**

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

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# SYNERJI ELECTRICAL

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Electrobase chairperson Glenn Gold gave an overview of the past year, along with an outlook for the year ahead.



Electrobase and Enerji's CEO Anthony Lloyd welcomed guests and award winners with a light-hearted speech to set the relaxed "seaside" tone at this year's awards.



The Zimbali private golf course played host to this year's awards event.



Major Tech received a Gold Award for Outstanding Services as a Supplier.



Three-D Agency received a Gold Award for Outstanding Services as a Supplier.



Guests had the opportunity to kick back, relax and have a little 'fun in the seaside sun' with a photobooth and prop session at the awards.



Crabtree received the Most Improved Supplier of the Year Gold Award.



HellermannTyton received the Supplier of the Year trophy.



Enerji Electrical received a Gold Award for Outstanding Services as a Supplier.



## Digitalisation powers the transformation of the grid

As the world continues to promote the decarbonising of energy systems, electricity will still be the backbone, explains Malvin Naicker, Managing Director (MD) of Hitachi Energy, Sub-Saharan Africa. "There is an



accelerated shift from fossil-based to renewable power generation, with growing electrification of the transportation, industrial and building sectors," says the industry expert. "To manage this, digital and energy platforms are needed for the enormous power system energy transition challenges of increased complexity and additional capacity requirements."

These platforms will enable greater grid resilience and help manage the shift to a more complex power generation landscape by matching fluctuations in power supply and demand dynamically, all conducted via digitisation and moving into an automated world.

### Cybersecurity

"A significant aspect of resilience is in cybersecurity. The world needs a cybersecure ecosystem for a resilient electric future. Energy is among the top-three target sectors for cyberattacks globally," says Naicker. "As energy grids become more resilient through the application of digitalisation, attention must be paid to the design and implementation of cybersecurity."

Utilities in South Africa are becoming increasingly aware of the advantages of outage management software solutions to manage the supply to their customer base. Some municipalities are considering deploying Supervisory Control and Data

Acquisition (SCADA) and Distribution Management Systems (DMS) to better manage their networks. "This is key to moving forward towards digitisation, and while it sounds easy, the actual implementation of a digital strategy takes a long period of time. Feasibility studies need to be conducted and all stakeholders need to be considered before digitisation can take place," says the executive.

### Self-generation

"Through changes in regulation and technology, large power users are now able to generate and use their own electrical energy. As this self-generation becomes more prevalent once legislation is passed, users will start to trade power with each other, with the grid being the trading platform for such exchanges," explains Naicker. "Sophisticated software solutions are available to manage such trading, allowing real-time exchange of power between users and settlement of the resultant commercial transactions."

With the rapid deployment of self-generation already underway, it is easier and cheaper to save a kWh of demand than build generation to cater for that demand, especially in households with existing solar photovoltaic (PV) systems. "Improved energy efficiency is essential if the world is to decarbonise successfully. The digital solutions available today support the implementation of energy efficiency, both through the identification of where energy is being used and the actions needed to use it more efficiently."

### Grid connection solutions

"As the power generation landscape evolves in South Africa, the demand for grid connection solutions is increasing rapidly. It has taken many decades to build the power grid that exists today. There is not enough time to meet the demand for new offtake and grid integration solutions unless new solutions such as prefabricated substations are considered to speed up the deployment of such grid connections," says Naicker.

Smart grid solutions consist of three components: The devices to collect data and control the grid, the communications network that connects these devices, and the software solutions that enable management of the grid.

The Internet of Things has enabled smaller, cheaper devices that can be deployed more easily and deeper into power networks. In homes, the smart meter can be the hub, enabling control of electricity demand.

"Digitalisation is the only way to manage this complexity, simplifying the contextualisation of massive amounts of data. However, this must be balanced with managing and optimising today's operations. Hitachi Energy can help you navigate this increasingly complex energy landscape," concludes Naicker. "We have the right combination of connected products, software-based solutions and digitally enabled services to solve real-world challenges and add real value."

Enquiries: [www.hitachienergy.com/africa](http://www.hitachienergy.com/africa)

## Boost your digital marketing strategy

Here are a couple of tips from business advice site [payaca.com](http://payaca.com) that will help you update and overhaul your existing marketing strategy as the digital environment becomes more important to electrical contractors.

### 1. Target the right audience

There is no point creating a strategy if you do not know who you are advertising to. If you are a small-scale contractor, you should not be using content on your digital platforms that would appeal to big business, because they will not be coming to you for projects. If you know who would use you for business, you can tailor your content to their needs and preferences.

### 2. Work on your web presence

Whether it is a website, WhatsApp

group or social media account, you will need some form of digital platform for your customers to interact with you. This can either be done in-house if you have a tech-savvy employee or you could bring in an outside specialist who will design, curate and manage your web presence so that you can focus on the work at hand.

You will need to take various factors into consideration when developing your online offerings, including user experience, loading time, search engine optimisation, ease of use and more.

Social media has become a brilliant method of marketing for businesses as you are able to share original content or content that has been created by other brands and businesses (although you should always credit the source) and draw attention to

your business. With social media platforms being manageable from your smartphone, you are also able to update or respond to enquiries no matter where you are.

### 3. Pay-per-click advertising

Using online advertising platforms such as Google Ads can be an effective marketing tool and ensures that your potential clientele will see your digital ads.

### 4. Online reputation management

Review websites such as Google Reviews and HelloPeter.com allow the public to share their experiences with businesses. It is important to manage your reputation, and this can be done via these sites – if someone complains, you need to react immediately and show that you are interested in the issue as well as finding an amicable, professional resolution. With a positive online image, customers are encouraged to continue using your services.

### 5. Measure up

The best way to know if your marketing strategy is working is to continually measure it using analytical software. Systems such as Google Analytics allow marketing managers to get an immediate overview of the system as well as identify problem areas and get more information that can be used to adjust the marketing plan without too much disruption.

## CBI's Home app gets iOS 16 update

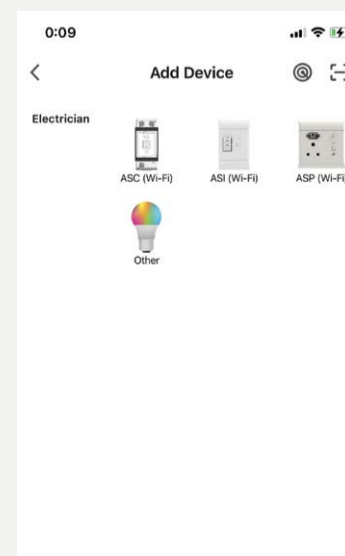
If you have been using CBI-electric's Home smartphone app on your Apple device to control your Wi-Fi-enabled switches in your house or office, the company has updated to iOS 16 compatibility along with various other user interface tweaks and performance modifications in its 1.0.5 update (which is also available on the Google Play Store for Android users).

This software update has added benefits for users as the company is constantly reviewing the performance of its software and products, with these kinds of software tweaks allowing CBI to give users a better experience when operating the devices. CBI is also able to send firmware updates to devices through the app, which ensures the latest performance settings are automatically configured when the updates are deployed.

For new users looking towards using the CBI Home app, the functionality and configuration are relatively straightforward. You download the app and create a free user account. Once your devices have been installed, you connect them to your 2.4GHz home internet network and

then add them to the app – this is done on the 'Add Device' screen. This step is easy – the app will detect devices on the network, and you press 'Add'. It is advisable to rename the device so that you know where it is in the building and what its purpose is – for example, Kitchen Chandelier or Lounge Downlights are easy to understand. Users are also able to troubleshoot issues with any devices on the network. An 'Offline' tag notifies users that there is a problem with a device as it has become disconnected from the network and needs attention.

Enquiries: [www.cbi-lowvoltage.co.za](http://www.cbi-lowvoltage.co.za)





## Four top apps for electricians

With smartphones now being more powerful than computers from a couple of years ago, the power of business is literally in your hands – and that includes electricians. The team at propertyinspect.com have lined up four of the best apps for electricians and electrical contractors to install on your smart phones.

### Faber Cable Calculator

Designed by German cable expert Faber, this calculator is available on Android and iOS and features a simple calculator that lets you calculate cable diameters

on the spot. You input data such as electric power, cos phi and the length of the cable, then the app will work out the diameter required for either copper or aluminium cabling. It is a free app.

### Mobile Electrician

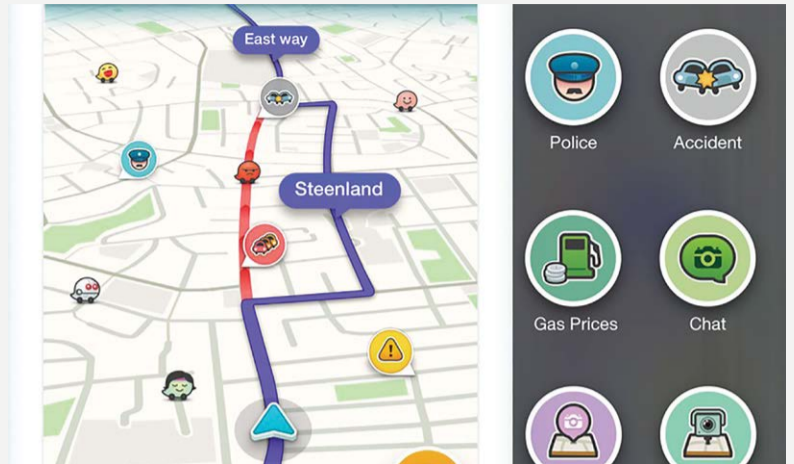
This handy reference guide is available on iOS and Android platforms and provides both simple and complex calculations for electricians on the worksite. This includes reference information in case you need to refresh your memory, all in one easy place. It costs R60 on both app stores.

### Xero

This accounting and invoicing system can manage small and large business needs, allowing users to generate quotes, invoices and manage projects on a smartphone. Documents can be customised easily to incorporate logos and business details, and there is also a project management feature that allows you to track a project from start to finish and identify problem areas on the fly. Subscriptions start at R435 per month.

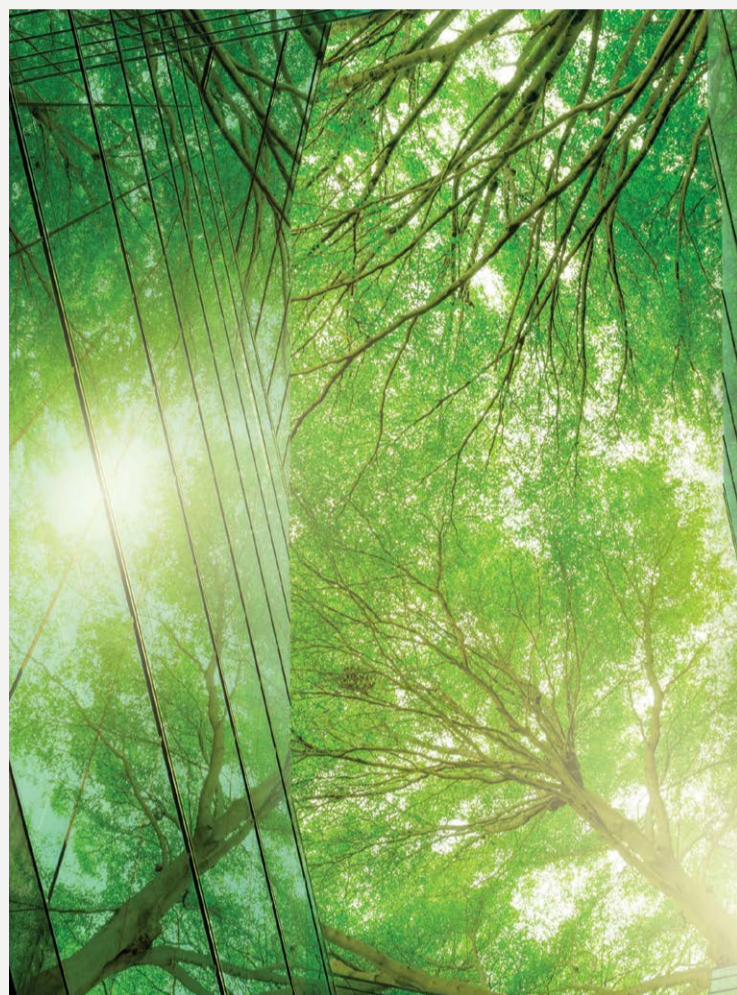
### Waze

This powerful navigation system is one of the best in the world because it adapts without prompting. If



there is an accident along your route, it will automatically find the next quickest route and direct you correctly. There are easy-to-read icons that display information that

could impact your drive, and you can also plan drives and schedule reminders that will let you know when you need to leave. The app is free on both iOS and Android.



## Schneider Electric finalises its EcoAct buyout

Leading electrical manufacturer Schneider Electric has acquired EcoAct SAS, an international leader in climate consulting and net zero solutions headquartered in Paris, France.

"The acquisition represents the coming together of two best-in-class organisations to accelerate business solutions that deliver true value for climate and clients," says Steve Wilhite, President of Sustainability Business for Schneider. "EcoAct's portfolio of net zero and nature-based products and services, including consulting, climate data tools, and carbon offset project development, will expand and accelerate Schneider Electric's global Sustainability Business, a leading provider of advisory services in the areas of energy management, energy efficiency, renewable energy and environmental commodity procurement, sustainability and net zero consulting, climate risk, sustainability communications, and reporting and disclosure."

Schneider's current advisory services support the development of sustainability strategy and target setting through to decarbonisation, enhanced by its Artificial Intelligence-led portfolio of digital and data management tools. "We have long admired the team at EcoAct, and bringing our two organisations together will help us to accelerate the ability to serve our clients all over the world," said Wilhite. "Companies understand the urgency to act but continue to face complexities when it comes to decarbonisation. I'm confident that our combined best-in-class teams will help our clients to accelerate faster towards their net zero ambitions."

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

## Swapping over to wireless worlds

There will always be a need for electrical cabling and equipment to provide power, but wireless technology and systems are becoming more important and prevalent for electricians. So now is the time to start adapting to the wireless world if you have not already done so. Tech website energy5.com says that "the job of an electrician has always been a profession focused on installing and maintaining wired electrical systems, but that industry is now branching into wireless technologies. The introduction of wireless systems should not be seen as a threat, but rather as an opportunity for electricians to broaden their skills and offer a wider range of services and products."

### Benefits of wireless

**Convenience:** Home automation systems let users set up their home in a way that meets their needs. For example, if you want exterior lights to switch on automatically at 18:00 every night, a smartphone app will allow you to schedule this event and you can forget about having to do it manually. Automated electrical products range from wall sockets and plugs, to light switches and colour-changing lightbulbs.

**Energy efficiency:** Going wireless allows you to control your electrical consumption daily. By using a geyser timer, you can schedule your geyser to turn on and off at specified timeslots – you need two hours to heat up a 200 litre geyser and the water will stay hot for up to six hours, so instead of running your geyser for 24 hours straight, you will be running it for two hours and consuming far less electricity every month.

**Enhanced security:** Wireless security cameras can be controlled via smartphone app and viewed anywhere you are in the world. If your Wi-Fi

network is operational, you can log in remotely and see what is going on in your home.

**Flexibility:** With an internet network spread out across your entire home, you can place smart devices throughout the property and still control it via smartphone app. You can turn on all the lights in a specific room in the house from the opposite end of the property, for example.

**Scalability:** Users are easily able to upgrade or downgrade the system to meet your needs. It is as simple as adding a range extender to boost and extend your network signal, then installing, connecting and configuring the device on your smartphone app.

With the increasing popularity of smart homes, electricians need to be trained and skilled in more than just installing the smart devices, they need to understand configuring the systems from top to bottom. "Electricians need to be able to design a system that will meet the user's needs, then connect all of the devices to a central hub," says energy5.com. "This includes appliances such as geysers and thermostats, lighting controls, even remote-controlled blinds. The number of smart home-enabled devices is expanding daily and electricians and electrical contractors need to be able to service all of these needs."

At the same time, electricians need to maintain a high level of performance and professionalism, including managing health and safety protocols. "Electricians need to be even more aware of things that could go wrong in a wireless system. If a light switch suddenly develops a fault, it could ripple down the system and cause an even bigger problem that results in a complete system failure. It does not happen often, but there is always the potential for problems."





## Caterpillar's DA01903 gives you all the drilling accessories you need

There is no such thing as 'too many drill bits' because you never know when you will arrive on a jobsite and your bit just does not fit. With its 201-piece DA01903 combination drill kit set, global construction giant Caterpillar is assisting contractors to have the correct drilling equipment within reach.

The pieces come safely and snugly fitted in a hardcover moulded carry case that is compact and easy to store and transport on jobsites. The kit has been designed to work with all major surfaces including metal, wood and plastic, and the bits are universal, which means that you do not necessarily need a Caterpillar-brand drill to use them.

There are a variety of styles, including Hex and Torx bits, as well as sizes ranging from 1.5mm to 20mm depending on the application. The kit comprises:

- 21 Metal twist bits
- 6 Brad point bits
- 6 Masonry bits
- 4 Spade bits
- 15 Wall anchors
- 13 Wood screws
- 70 25mm Insert bits
- 40 50mm Power bits
- 2 Drill stoppers
- 10 Nutdrivers
- 1 Screw finder
- 10 Allen keys
- 1 Magnetic bit holder
- 1 Countersink bit
- Quick connect holder



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

## Major Tech updates its insulated tools

Electrical distributor Major Tech has updated its 1 000V insulated toolkit that features 38 essential tools for electrical contractors, all neatly packed into one easy-to-carry backpack. It has also been discounted and currently retails for under R18 000\*.

The tools all conform to IEC 60900 standards, have been individually tested to 10 000V, and are made from chrome vanadium steel. They are fully insulated for use on live conductors up to 1 000V AC, and each tool has its specific storage space in the pack trays.

The toolkit includes:

- 50mm straight blade stripping knife
- 38mm curved blade stripping knife

- 7-piece insulated open jaw spanner set
- 9-piece insulated spanner and socket set
- 1/2" insulated T-handle
- 1/2" insulated ratchet extension bar
- 36mm insulated adjustable spanner
- 300mm insulated hacksaw
- 3-10mm insulated hex key set
- 230mm insulated pliers with crimper
- 200mm insulated diagonal cutting pliers
- 200mm insulated long nose pliers
- 6-piece insulated screwdriver set

Enquiries: [www.major-tech.com](http://www.major-tech.com)  
\*Price subject to change without notice



## Comtest adds accuracy with laser alignment tool

Local distributor Comtest, through its partnership with US-based tool and electrical equipment manufacturer Fluke, has introduced the Fluke 831 Laser to its product range. "This unit simplifies precision alignment on large and small rotary machinery and equipment," says Jonathan Gough, Product Manager for Fluke Reliability, Germany. "This tool will save businesses a lot of money in downtime and energy waste by making it practical to align most machines, not just a select few."

Misalignment causes a significant percentage of damage to rotary tools and machinery. "Rather than treat the actual alignment issues, many people prefer to deal with the symptoms," says Gough. "It is a misconception that alignment can take a long time. Using a laser tool like the 831 from Fluke, users can easily complete the alignment process using the intuitive guided user interface that enables quick and complete shaft alignment without advanced training or complicated programs."

He adds that the Fluke 831 features a quick setup, along with the Adaptive Alignment function that allows maintenance and reliability teams to address various challenges of horizontal, angular and vertical alignment. "Data is shared to the cloud



through the unit's integrated Wi-Fi cloud solution to the ARC 4.0 PC software," says Gough, adding, "Shaft alignment should be a regular part of the maintenance routine". This routine maintenance will lead to less energy consumption through the elimination of reaction forces inside rotating machinery, increased reliability, reduction in costs through a decrease of spare parts and extended parts life, and increased maintenance intervals due to longer machine life, concludes the product executive.

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

## First Cut and GSI unveil their oxyfuel S.A.T. welding system in Germany

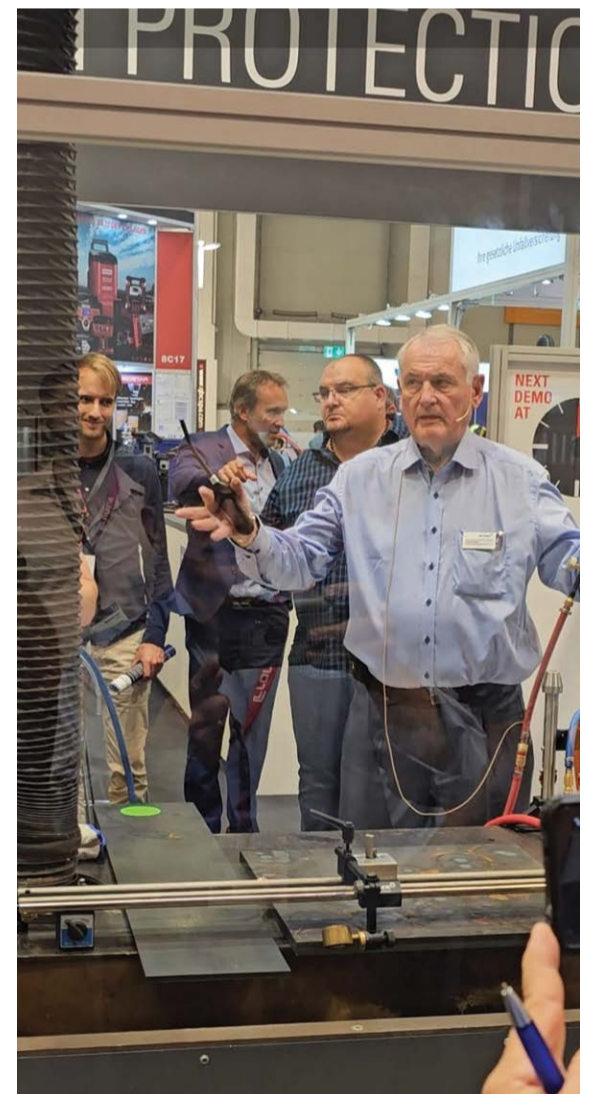
The famous Essen Welding & Cutting Show was recently held in Germany after a six-year hiatus, with South Africa's First Cut and Gas Safety International (GSI) taking centre stage with their innovative oxyfuel S.A.T. welding system. On hand for the demonstrations were Ian McCrystal, Chief Executive Officer (CEO) of First Cut, and Peter Rohlssen, Managing Director (MD) of GSI.

"I was impressed by the overwhelming interest sparked by the oxyfuel S.A.T. (Safety Advanced Technology) system," says Rohlssen. "We had easily 50 people in the audience watching our demonstration. Our product was launched last year and there has been a significant international interest in it."

The S.A.T. system is an upgrade in terms of compressed gas safety, thanks to First Cut and GSI's patented S.A.T. components: The process, valve, and cutting torch. "By incorporating advanced safety measures and technologies, the system significantly reduces the risks associated with working with compressed gases, including the risk of leaks due to improper handling, external damage, and normal wear and tear," says Rohlssen, with McCrystal adding, "The prevalence of severe accidents within industrial sectors can largely be attributed to human error. These errors often result from inadequate training, and this is not confined to a local issue - we have observed the repercussions of sub-standard training on a global scale."

The new system has been through rigorous testing, explain the pair of executives. "Compliance to international accreditation standards is a significant consideration when engaging with European clients. We subjected the oxyfuel system to the rigorous technical criteria of the ISO 5175-2 standard." While the manufacturers were confident that their product would handle pressures of up to 27 bars, independent third-party testing in Germany saw the S.A.T. system operating at more than 60 bars of pressure.

"The independent testing also subjected the valve to an internal leakage test using helium, an external leakage test and a reverse-flow test measuring its performance when subjected to reverse gas flow," explains the executive. "This is crucial for preventing gas flow in the wrong direction, as it ensures that gases only flow in the intended direction. The S.A.T.



GSI's Peter Rohlssen demonstrates the S.A.T. system in Germany.

system successfully met the required criteria, showing its conformance to compressed gas safety requirements." Rohlssen concludes, "The exceptional performance of the S.A.T. system during testing unequivocally underscores its readiness for adoption by international companies and its capability to meet the most demanding standards and specifications."

Enquiries: [www.firstcut.co.za](http://www.firstcut.co.za),  
[www.gas-safety.co.za](http://www.gas-safety.co.za)



## Uni-T smart multimeter puts measurement power in your hands

Measurement tool specialist Uni-Trend's UT122 smart multimeter is setting the standard for electrical measurements. "You clip it onto the cable in question and the UT122 automatically knows what is being measured, whether it is volts or ohms," explains Ian Downard, a founding member of Three-D Agencies, who brings Uni-T products into the country.

The UT122 is physically smaller than most cellular smartphones and, at just 19mm thick, it sits comfortably and lightly in the user's hand. "It has a built-in rechargeable Lithium-ion battery and a USB-C charging port that allows the multimeter to charge quickly, and it is easier to transport and use – it slips into your back pocket. "There is a large-format LCD screen that makes it easy to read information," says Downard, adding, "At a R1 000 price point, this is a tool that every electrician and electrical contractor should have in their toolboxes."

The Auto Range function is where the UT122 really excels, adds the Three-D executive. "It measures pretty much everything an electrician could need to test – voltage, resistance, capacitance... it even performs diode tests automatically. Instead of having to fiddle with knobs, buttons and settings as with traditional multimeters, the UT122 assesses the environment it is placed in and automatically, intuitively takes measurements. It is a smart tool in every sense of the word."



Enquiries: [www.uni-trend.co.za](http://www.uni-trend.co.za)

## Kress rotary hammer drill and grinder add tool strength to your work kit

Imported to South Africa by the Positec Group, German powertool brand Kress has given its range of powertools a boost with the KUC60.2 rotary hammer drill set and the handheld KU800 brushless grinder, both of which fit neatly into any toolbox.

The KUC60.2 features a low-maintenance brushless design and has three swappable functions: Drilling, hammer drilling, and chiselling – the KUC60.2's chisel function has a separate angle adjustment setting to make the action easier to control while utilising the 2 joules of impact energy. The tool delivers 4 700bpm of high-speed drilling power, with an SDS+ chuck that allows for the easy switching of bit fittings that are held tightly in place with the four bit clamps (regular drills have three clamps).

The KUC60.2 can be used to drill through 22mm of concrete, 28mm of wood and 13mm of steel, and the knuckleguard provides added protection from flying debris during hammering applications. It weighs 2.8kg and comes with an easy-grip side handle that allows for comfortable use regardless of which of the three actions is being applied.

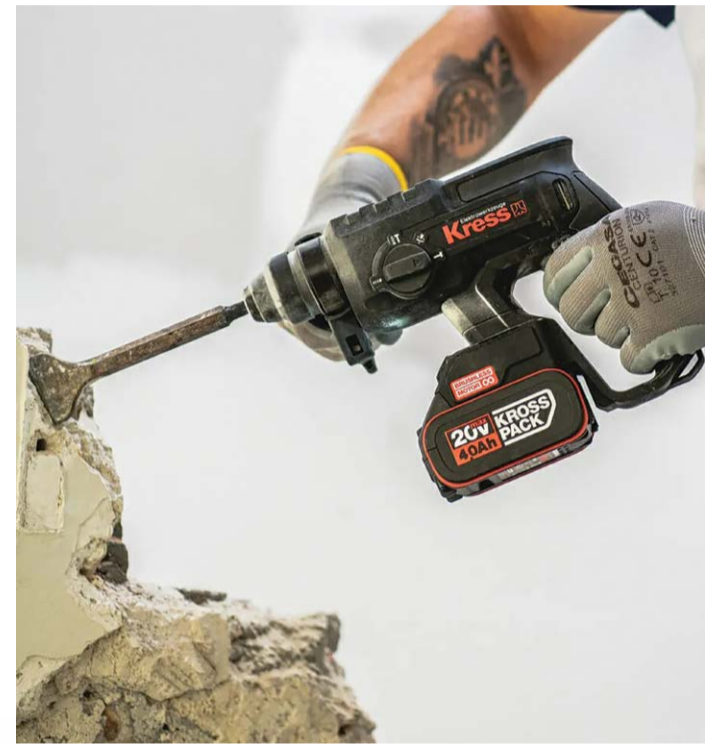
The KU800 grinder is a small-angle device that allows users to get into the tightest of spaces, with a safety protection power-off setting that switches the tool off automatically should it be dropped, and a quick brake protection feature that stops the grinding disc in milliseconds in an emergency. It carries a disc up to 100mm in diameter, and pushes through 8 500rpm to deliver intense grinding action.

Weighing 3kg, it is lighter than most other grinders in the same category, but the KU800 has loads of hidden features inside its small frame. Kress's patented spindle labyrinth is a dustproof design to keep the grinder's internal mechanisms clean of debris, dust and other possible contaminants, while a stainless steel gear provides durability and longevity no matter what application the grinder is being used on. There is also the intelligent PMP power management system that protects the user by detecting

surges in current and switching off the device before there is a problem.

Both tools make use of Kress's 20V Max 4.0Ah KrossPack batteries – they charge from flat to 100% in just two hours and can be hot-swapped with any cordless Kress tool – one size fits and powers all. The KU800 and KUC60.2 come with full accessories including storage case, battery charger and two 20V batteries each.

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



## Must-have electrical equipment that will complete your toolbox

There is nothing worse than not having the correct tools on a job or having your tools break during important work. Lighting specialist Radiant has highlighted a couple of must-have items you should have in your toolbox to tackle any electrical job...

### Electrical tape

Insulation tape is used to tie off cables that are no longer needed but cannot be

removed from the circuit.

### Multimeter

This tool allows users to measure various electrical parameters, test components and diagnose issues.

### Pliers

These gripping tools are available in many formats, shapes and sizes, but there are

two that you should always have handy. Needle-nose pliers are long and slender with pointed tips that make it easier to grip and bend wires in tight spots. Lineman's pliers are designed for cutting, bending and gripping electrical wires, with the wire cutter situated near the pivot point.

### Screwdrivers

These are basic tools for any person with a toolbox, more so for electrical contractors who need to secure wiring to components such as outlets, switches and junction boxes. There are dozens of brands available, but invest in a quality brand that offers sets complete with flat-head and Phillips-head screwdrivers in various sizes. Precision screwdrivers with rotating bases should also be kept for those jobs that require smaller tools for tighter spaces where elbow room is limited.

### Voltage testers

These help users to determine whether or not an electrical circuit is live. They can also prevent potential accidents by alerting you to the presence of electrical current before you start working on a circuit. They come in various types, including circuit

testers and non-contact voltage detectors that do not need to be in physical contact with the circuit in question to detect voltage. Circuit testers, meanwhile, provide detailed, accurate electrical information about the circuit being tested.

### Wire nuts

These plastic components are used to protect you from contact with overstripped wires. They can also be used to connect two or more conductor ends in pigtail application while insulating the connection.

### Wire strippers

These are fundamental when it comes to any electrical work. Wire strippers allow you to remove the outer insulation of electrical wires to expose the conductive aluminium or copper internal core. This process is needed for creating connections, splicing wires or attaching wires to outlets and switches, with the wire strippers preventing accidental damage to the core wire. Wire strippers come in various sizes and styles, with manual and automatic versions being available.

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



## ACTOM increases work in DRC with multiple switchgear installation contracts

Electrical specialist ACTOM's MV Switchgear division has continued its successful business dealings in the Democratic Republic of Congo by signing new contracts to supply various switchgear systems to local industries and mines. "Air-insulated switchgear panels have been installed in the 11kV substations in Kamo-a-Kakula copper mine during the past two years and we are now going to be installing solid insulated switchgear systems in same project," says Rhett Kelly, Design & Development Manager in the MV Switchgear division.

MV Switchgear provided more than

200 of its popular and high-performing SBV4E switchgear panels for use in the low-to-medium voltage systems, with Rhett adding, "We will be installing 149 GELPAG solid insulated units underground. Harsh environmental conditions such as high levels of humidity and dust were found to be present in these underground sections, necessitating having to introduce more specialised switchgear equipped to cope with these conditions."

While most businesses are struggling with the clearance of international orders in local ports, ACTOM has taken a decision that it hopes will pay off overnight. "We have collaborated with our international manufacturing partner, and we have commenced local manufacturing of some of our OEM switchgear components," says Rhett. "We have substantially shortened the production lead times, as we can now manufacture the agreed locally produced components in parallel with the OEM's production of the main product, thereby speeding up both final assembly of the product in our plant as well as delivery to the end-user."



The components that ACTOM is manufacturing locally include the low-voltage compartment, drop-down boxes for the cable termination, and the internal arc ducting," says Johan Jordaan, Technology Development Specialist at ACTOM. "To further speed up and simplify production and delivery, we've developed a low-voltage connector system that allows the panel's circuit-breaker, disconnector and earth

switch wiring to interface with the low-voltage control wiring via a standard multi-pin plug-and-socket system."

MV Switchgear has also developed an innovative wiring test rig that allows it to test and verify the wiring of each low-voltage compartment before the panels leave the factory.

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

## HellermannTyton focuses on sustainability and efficiency at its factory and your home

Electrical component leader HellermannTyton has been undergoing a transformation at its Johannesburg headquarters, with a massive upgrade to its factory and warehouse facilities. "We are adding about 2 600m<sup>2</sup> to the facility, and are hoping to have the project completed early in 2024," says Andrew Edwards, Head of Sales – Electrical Markets at HellermannTyton.

"We are investing in our facilities to better serve our customers. We have installed around 1 200 solar photovoltaic (PV) panels to the rooftop that will provide roughly 1.2 gigawatts of power per year. This is in line with Europe's drive to be more socially conscious and the installation will save us about 100 metric tons of carbon emissions per year," says Edwards, adding that the company had used about 400 litres of diesel per hour in the past year in an attempt to maintain operations during loadshedding.

That is not the only area HellermannTyton has been working hard on – its popular geyser timer has been given an upgrade as well. The TDDGT has had its internals changed and now features a relay that is rated at 30 amps, which means it will cater for every geyser available on the South African market. There are 20 programmable settings and a 15-day back-up battery built into the geyser timer that measures just 85mm in length, 45mm in width and 35mm in depth. The HellermannTyton executive adds, "We are so confident in this product that we have increased the two-year warranty to three

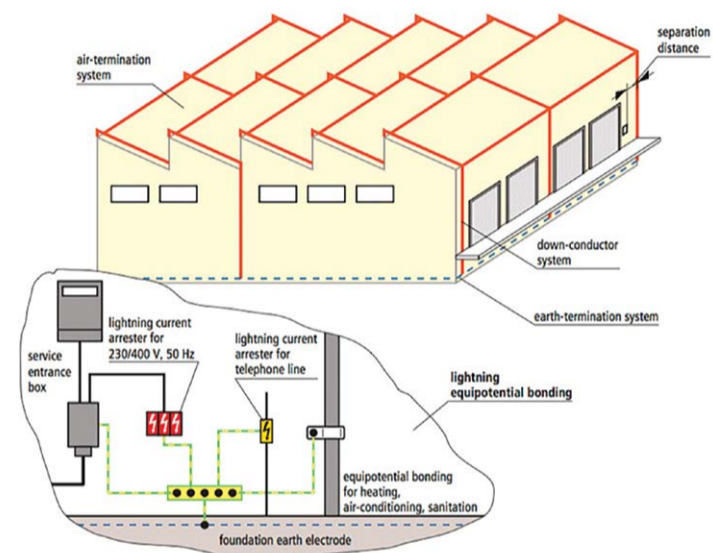
years. We believe this is the only geyser timer to have a three-year warranty, as well as having a regulatory compliance certificate from the South African Bureau of Standards."

Continuing with the theme of environmental friendliness, HellermannTyton has also redesigned its packaging, starting with the TDDGT. "We are decreasing our carbon footprint by dropping the traditional plastic blisterpack and opting for a recyclable cardboard box-style packaging. The new design means we can also pack more into containers for better transportation and logistics efficiency," concludes Edwards.

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



## How to assess your property the correct way for lightning protection



If you are planning the installation of lightning protection equipment on your property, the first step is conducting a lightning protection study. This does not need to be an intimidating or scary process, explains surge experts Lightning Protection Concepts (LPC). In fact, the study can be completed in just five steps...

### 1. Lightning risk assessment

This must be in accordance with the IEC 62305-2 standard set by the International Electrotechnical Commission, and it is used to establish the actual necessity for electrical protection on the property. The test takes numerous factors into consideration, including:

- Lightning strike density in the area
- The occupation coefficient of the building
- Fire risk
- Electrical power lines nearby
- Relative location of the site

The information is input into computer software that then uses an algorithm to calculate the risk of a lightning strike to the property.

### 2. Soil resistivity testing

This information is necessary as it determines the grounding system that you will need. You need the space with the lowest possible resistance on your property, and the best method is the Wenner Four Point test. A four-pole digital ground resistance meter is used as four probes are inserted into the

ground – they establish electrical contact with the ground and inject a constant current through the ground, and the resulting measurements give you the soil resistance.

### 3. Design

Your lightning protection system (LPS) design is an in-depth model that illustrates the system that is going to be used. Every component, cable, wire, nut and bolt is accounted for in this design, including the down-conductor system and earthing termination system.

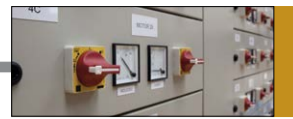
### 4. Earth Termination System simulation

The Earth Termination System (ETS) must be designed in a way that lightning currents are safely diverted into the ground without fault. Once the ETS has been configured, computer software is used to run simulation tests that will calculate what the system can and cannot handle in terms of surges.

### 5. Insulation co-ordination study

This determines the correct mitigation against lightning electromagnetic impulses by using the risk assessment and lightning protection zoning data. It ensures that the system meets relevant industry standards and that users will be safe should an incident occur.

Enquiries: [www.lpconcepts.com](http://www.lpconcepts.com)  
Image: [www.dehn.ua.com](http://www.dehn.ua.com)



## Protect your property from lightning the correct way

Local surge protection company Surgetek knows all about the power of lightning strikes and how much damage can be done during an electrical storm. For that reason, Surgetek has put together a helpful guide on how to protect your home or office from lightning strikes and why it is critical to have lightning protection.

### Will an external lightning protection mast be enough to protect my equipment inside from a lightning strike?

Not entirely – the electromagnetic effects and induction will still cause damage within the building. If you install external lightning protection, you require lightning current arresters and surge arresters to be able to withstand the induced energy. Lightning striking up to 1km away can still cause damage to sensitive electrical and electronic equipment.

### How often will my house be struck by lightning?

An average 200m<sup>2</sup> house in Gauteng, with a lightning flash density of five strikes per kilometre, can expect to be struck less than once in 250 years. The same house can expect a surge to enter via the power and telephone cables at least five times a year, more so during loadshedding.

### Do surge arresters protect my DB board entirely from surges?

Surge arresters dramatically reduce the risk of damage,

but the risk cannot be eliminated. Surge protectors are designed to withstand induced surges of up to 40kA, so a direct strike, carrying significantly more energy, could destroy the arresters and they will need to be replaced. Simultaneously, surge protectors are designed to protect against high energy, so you would need a voltage regulator for surges of 250 volts, for example.

### Should 20kA surge arresters be used if my DB board has a fault current rating of 15kA?

Surge arresters' kA rating has nothing to do with the fault current rating of a DB board. You can fit a 40kA surge arrester in a domestic board with a fault current rating of less than 5kA. In larger panels with high fault current ratings, you must pre-fuse surge arresters to co-ordinate and protect the surge arresters.

### Will fitting multiple surge arresters in parallel increase the surge handling capabilities?

No, because surge arresters will not conduct evenly. By installing two 40kA arresters, your system will not be able to handle a surge of 80kA, for example. Instead, you will handle about 65kA.

### Does a Class 1 lightning current arrester offer better protection than Class 2 arresters?

No, Class 1 components need to be used in conjunction with Class 2 surge arresters to offer complete protection.



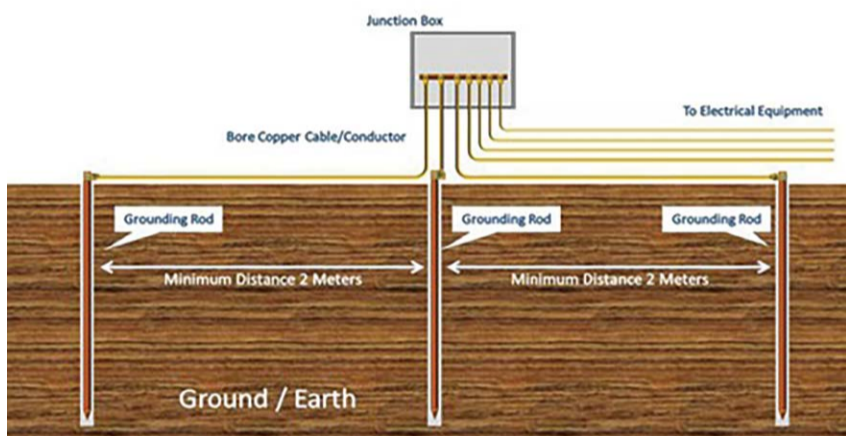
### Will plug-in type surge arresters protect my system?

The Copa SurgeGuard range, which we sell, is typically a Class 3 arrester, and in terms of SANS 10142-1:2003, they should be used in conjunction with Class 2 surge arresters in your DB board.

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

## Keep a finger on earth spikes

Planting 3 Points of Grounding Rod



Solar supplier and manufacturer Valsa Trading has spent 14 years perfecting the skills related to solar photovoltaic (PV) systems, and Svilen Voychev, the company's Chief Executive Officer (CEO), says there are still installers who take shortcuts when earthing PV systems. "South African National Standards (SANS) regulations clearly stipulate that 'the earth reference needs to be taken down through a 25mm<sup>2</sup> Green/Yellow GP wire that will be terminated to an earth mat comprising a minimum of four earth spikes or rods to afford the installation and insulation resistance not greater than ≤3 ohms."

The upsurge of residential and commercial solar installations has led to an increase in less experienced and even untrained installers entering the market. "They are not fully aware of necessity for lightning protection on these systems, and that should be a major cause for concern," says Voychev, adding, "Earthing in electrical installations is of the utmost importance and cannot be compromised. It could be a matter of life or death."

Lightning strikes can produce around 300 million Volts and 30 000 Amps per strike, and this instantaneous discharge can not only terminally damage unearthed electrical equipment, it can lead to fire and loss of life and property. Failure to install an appropriate earthing system could also

invalidate an owner's insurance claim, says the CEO. "Earth spikes provide the protection required to ensure the installed electrical system is compliant according to SANS regulations. The purpose of earth spikes is to protect the installed electrical equipment, such as inverters, batteries and solar panels, from lightning surges by channelling these large electrical currents into the ground."

With a decade-and-a-half and hundreds of projects under its belt, Valsa Trading has developed an earth spike kit that will protect your installation. "As part of our comprehensive range of solar components, our earth spike kit complies with SANS regulations and comes as a complete package for installers, comprising earth spikes, BETAflamR Solar 125 RV flex 1 500V DC cabling and all connections, at a competitive price," says Voychev.

Installation is quite simple, too.

- The ground rods should be placed at a minimum of 2m apart. This ensures that any shortcircuit and leakage currents will not affect the system operation.
- The grounding rod should be completely buried underground, leaving only the copper cable connector exposed above ground.

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

## Edison Lebone ramps up Wi-Fi-controlled switch and socket range

Electrical wholesaler Edison Lebone is highlighting the need for electricity control as the cost of electricity continues to rise in South Africa and loadshedding is seemingly unending. The CBI-electric Astute Smart range is the perfect option, with Edison Electric carrying the entire range of switch, socket and breaker products.

"The Astute products are a range of energy monitoring and scheduling control devices that allow for complete home automation," says the Lebone sales team. "The devices connect to your smartphone via the brand's specially designed app that allows users to configure the Astute devices to their needs." This includes on-off times for geyser breakers, as well as sockets that are often left on or in standby 24/7, eliminating the need to get out of bed, for example, to go switch the plug off.

The Astute devices feature a switch capability of 30A, there is no need to rewire your property to accommodate the switches, and there are no hidden costs or subscriptions involved. "The app that drives the smart devices is free, as is the login account for users. You sign up, login and start configuring your devices," adds Edison's team.

To connect the devices and make them 'smart', you will need a 2.4GHz Wi-Fi home internet network and a smartphone or tablet. The app is available for both Apple iOS and Google Android devices. The app sends offline notifications when there is a problem



with a specific switch connecting to the network. It also allows for control over multiple devices at the same time, so you could switch off an entire downstairs section of the house with just one click of a button on your smart device.

The Astute switches can be used with almost any application at home, ranging from security lights switching on at sunset and off at sunrise, pool pumps to run at a certain time during the day, and even your irrigation system switching on at a set time. "This type of product allows you to have total control over your energy usage," says the team, adding, "It is so easy to leave lights on at night or have an appliance consuming electricity even though it is in standby mode. With control devices like the Astute range installed, you can have control and manage your devices and power usage."

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



## Ams Osram makes a move with lighting for automobiles

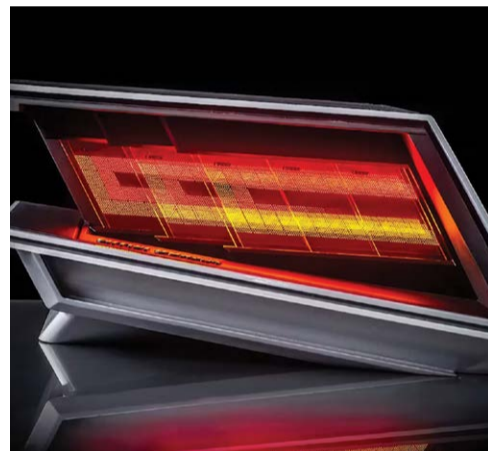
Austrian-based lighting giant Ams Osram has opted to use foil-mounted chips instead of traditional OLEDs for car lights, and it could have ripple-down effects for the company's other commercial illumination products.

"Having LEDs mounted on foil allows us to develop increased and improved lighting functions, such as displaying icons, symbols and even words," says an Ams Osram spokesperson. "The change will allow drivers to display all kinds of information to other road users, and it will allow automotive manufacturers to design cars with unique decorative looks." This is similar to the lighting products manufactured for German car brand Audi by US lighting specialists OLEDWorks, but Osram is directing its research in a slightly different direction. "We are focusing on mini LEDs. These are smaller than standard LED chips and a little bigger than micro LEDs. We have developed our Aliyos LED as a result of our research," adds the spokesperson, revealing that the Aliyos has one incredible performance aspect that other mini LED manufacturers are yet to replicate. One demonstration exploited the transparency of the Aliyos foil substrate to produce new 3D effects

in car rear lights. In essence, if you mounted three Aliyos panels on top of each other, you could create a 3D image because there is a sense of depth in the construction. "Another design shows that the Aliyos LED-on-foil technology can be applied to curved body panels and becomes invisible when the lights are switched off," says Ams Osram.

This technology will be incorporated into some of the company's other LED products, says the spokesperson. "LEDs are important in the modern world because they have replaced incandescent bulbs in many countries. These kinds of developments, where LEDs are upgraded with new technology, can only be beneficial for consumers at home. We are currently working on integrating the Aliyos-style chip into our commercial and industrial lighting products that will transform them into communication devices on top of sources of light."

Sources: [www.osram.com](http://www.osram.com), [www.youtube.com](http://www.youtube.com)



## BEKA Schröder illuminates Durban's Dube TradePort warehouse

Lighting specialist BEKA Schröder has provided the illumination solution to a new warehouse facility at the Dube TradePort in KwaZulu-Natal. Dube TradePort is situated in a special economic zone right next to the King Shaka International Airport and has been purpose-planned to push development in South Africa's industrial and commercial sectors. Faradh Karim, Senior Sales Engineer at BEKA Schröder, says that planning this illumination project took a lot of preparation and assessment but that the solution was comprehensive, allowing the manufacturer to tailor-make a solution that delivers more than required.

"We chose the BEKA Schröder EcoBay and LedBay LED low- and highbay luminaires. These luminaires are highly efficient and energy saving, and because

of their long lifetime and low maintenance requirement, there is no lamp replacement needed for more than 10 years," says Karim, adding, "The LedBay fittings can be used in hazardous environments where a Zone 2 or 21/22 rated luminaire is required. Furthermore, the LedBay is available with a battery back-up version to be used in emergency situations."

BEKA Schröder used its Series 30 round LED bulkheads to illuminate staircases and passageways in the facility, with emergency versions guaranteeing that light is still available during power outages. "The Series 30 uses high-quality materials to ensure a high ingress protection and non-discolouring diffuser to make this an obvious choice," adds Karim.

For the warehouse exterior, BEKA



BEKA Schröder's LEDLUME and ELLEGA luminaires have been installed to provide area lighting.

## Why 'what is on the box' isn't always what is inside the box

Opinion piece: Andrea Barausse is the founder and managing director of Durban-based lighting company Energywise Systems. In 2023, he was elected as the technical chair of IESSA – the Illumination Engineering Society of South Africa.

The world of lighting specifications can challenge novices and seasoned pros alike. Last month, we discussed the difference between Nominal, Effective and Residual lumens. In this article, we will look at the often-glaring discrepancies between what is advertised on the box and the sometimes-disappointing reality of what the light achieves during operation.

This discordance can be attributed to three key factors:

- **Manipulation of data:** Unscrupulous (typically cheaper) manufacturers resort to the practice of providing incomplete or even falsified specifications to make their products appear more enticing than they are.
- **Misinterpretation of data/specifications:** Testing procedures can be inadvertently misconstrued, leading to inaccurate assessments of a product. Consequently, customers may be left with lighting that falls short of expectations. This is more prevalent in the world of well-meaning, but misinformed, designers and engineers.
- **Insufficient/incorrect testing:** Shortcuts may be taken by manufacturers who omit essential tests during product development. Or they lack the means to test themselves and plug in OEM (Original Equipment Manufacturer) data from the component manufacturers which, as discussed in last month's article, are useless to the end user. It is worth nothing that OEM data makes the light's specs appear impressive. So how does this affect consumers? Firstly, the premature failure of the light. Secondly, and more commonly, the reduced performance of the luminaire. Premature failure can be caused by several reasons, but by far the biggest culprit is operating temperature. If you are operating just 10°C above a light's defined temperature range, you can half the lifespan. Do not get caught out by claims on the box stating an operating temperature of -20°C to +45°C; this is a safety rating indicating that the light will not catch alight. Expecting the performance promised on the box at these temperatures is a common pitfall for consumers. International standards dictate that a light is tested at 25°C, so



all claims on the box are derived from tests conducted at this temperature. LEDs have a direct relationship with temperature, and this can affect everything from the fitting's lifespan to output, and even colour temperature in certain instances. In short, change the temperature and you change the light's performance. Now consider a warehouse during a South African summer – how many highbays are operating at 25°C? When it comes to performance, 90% or more of lighting warranties only cover the basic functioning of the light, not its output. Essentially, the warranty says it will continue to turn on in the fifth year of its five-year warranty, not that it will produce the lumen output claimed on the box in year 5. And that is a huge difference.

Any depreciation in output would be slow and the consumer's eyes adapt to such changes over time. But you may well uncover drops in productivity or increased headaches among staff. You could even fail a health and safety test due to substandard lighting that you were not aware of. Worst of all, a depreciation of lumen output never corresponds to a drop in energy consumption, so you are paying the same in energy and getting far less light.

In short, if the manufacturer's claims sound too good to be true, they probably are. If the product is cheaper than the competition, there is a good reason. And if your lighting designer is not giving you different results for a luminaire in a 25°C room versus a 35°C room, walk away and save yourself a future headache.

Schröder has chosen a selection of illumination products to bring light to the facility. "As a result, the area is well illuminated to provide a sense of safety and wellbeing," says Karim. "We opted for LedLume 1 on the walls as they maximise area lighting. They offer optimised photometrical performance with a minimum total cost of ownership. They provide customers with the ideal tool to generate energy savings, improve lighting levels, and reduce maintenance costs."

BEKA Schröder's team has installed the Ellega fittings along the perimeter of the warehouse for security lighting. The flexibility of the photometric engine provides

multiple lighting distributions to adapt to the facility's needs. The Ellega is also available in a single or double configuration at various heights. Series 40 rectangular LED bulkheads have been installed along the exterior of the warehouse buildings, says Karim. "They are the perfect solution to beautify buildings and provide general area lighting. The battery back-up version is a great solution for loadshedding as it provides four hours of back-up lighting and utilises a fast-charging inverter to ensure they are fully charged before the next loadshedding cycle."

Enquiries: [www.beka-schreder.co.za](http://www.beka-schreder.co.za)



## Failing LEDs in the US produce potential problem

Cities around the United States have recently been exposed to a curious issue with LED streetlights: They have turned purple. Karen Kwon, a journalist from scientificamerican.com, says that “these purple lights may seem innocuous, but they could be dangerous to road users”.

According to scientists in the US, LED streetlights that suddenly turn purple (from their standard white colour) are suffering from one of many possible failures. “These tones of purple suggest that the phosphor layer around the lights have delaminated, and the blue LED light underneath has now

been exposed,” explains lighting expert John D Bullough from the Light & Health Research Center at the Icahn School of Medicine.

The problem comes with human eyes, adds Bullough. “Rod-shaped photoreceptors in the eye are more sensitive to low-wave-length light – the blue part of the electro-magnetic spectrum. These rods are located in the peripheral part of the retina. As a result, people driving at night may notice a moving object in their peripheral vision more quickly under blue-purple light.” But there is a trade-off: Once the eye focuses on

the moving object, it becomes harder to see “because human eyes have very few blue-sensitive photoreceptors,” says the expert.

Streetlights are designed to emit a certain level of light, so a change this drastic will have an effect on the quality of light people are driving in. “This particular shade of light also worsens people’s ability to see details because of the lack of blue-sensitive cone photoreceptors in the centre of the retina. Blue-violet light makes it difficult to distinguish between different colours. So if you have a purple light on your street, try to get it changed immediately to protect people’s lives,” he warns.

## Micro Lens Arrays will improve architectural lighting solutions

Kevin Green, Global Commercial Director from optical film tech company BrightView Technologies says, “There is a fundamental demand uniting lighting objectives across outdoor and indoor architectural environments. Whether it is spotlighting specific features or illuminating a room with unique light patterns, precision helps to bring innovative concepts to life”.

Speaking to US website lightnowblog.com, Green adds, “As lighting demands have grown more varied and sophisticated, solutions to help serve optical needs have also evolved. Micro lens array (MLA) technologies will be able to bend and shape light in driving custom, high-performing optics.” MLAs consist of microscale lenses engineered to shape light for unique applications. The lenses are manufactured to suit the required light output based on a given light input. “MLAs are embossed, etched or moulded onto or in optically clear substrates such as polycarbonate films,” he says. The manufacturing method for MLAs has been designed in such a way that they can be produced in high-volume, roll-to-roll formats. “This enables designers to generate tailor-created MLAs uniformly and efficiently,” says Green, explaining that “there are several architectural trends where MLAs can provide benefits in lighting design and implementation”. In outdoor spaces, designers will now be able to support numerous configurations, including colour mixing, wall grazing and beam control to highlight certain design features.

Indoor MLAs will also see an increase in applications that will allow designers to develop performance requirements for angle control, source hiding or aesthetics. “By deploying an MLA-based solution, designers can leverage beam-shaping capabilities in all directions – creating illumination at a greater fixture spacing than many of their traditional counterparts,” says Green.

MLAs are seen as part of lighting’s ‘next generation’ of developments, explains the lighting expert. “There has been a gradual shift to smaller devices. For example, museums commonly deployed six-inch LED downlights to highlight exhibitions but they are now using devices as small as one inch.” He adds, “MLAs are going to make precision lighting solutions far more accessible in the future. They will help serve as a catalyst for advancing customisable light bending and beam-shaping capabilities, bringing new optical visions to life. Designers can generate the right-sized MLA efficiently through the iterative tooling process, which can then be quickly transitioned into production.”

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