

# WHAT ELECTRICAL CONTRACTORS REALLY NEED TO KNOW ABOUT AI IN 2023



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CONTINUED ON PAGE 6

**M**ost people certainly understand at this point that artificial intelligence will significantly affect our lives.

A few years ago, you might have been forgiven for wondering whether it was just another fad. But recent advances – such as the emergence of generative AI tools like ChatGPT – have left most of us in no doubt that we're witnessing the dawn of a new era. An era that's likely to see our lives change just as dramatically as we saw with the arrival of personal computers, the internet, or smartphones. Google CEO, Sundar Pichai, even famously stated back in 2016 that it would have a bigger impact than fire or electricity.

What are the most important things we need to understand about this revolutionary technology?

### AI isn't the future – it's now

True, it is still early, and compared to what we'll be using in five years, the AI tools and applications that are currently blowing our minds will seem laughably antiquated. But make no mistake, AI is here today, embedded everywhere in the world around us. You might be one of the many who don't even realize it – a survey a few years back found that while 84% of us were using AI on a daily basis, only 34% knew we were doing it. But when you're shopping online, searching the internet, ordering food deliveries, hailing a ride, navigating from place to place, or enjoying music and movies, you're probably using AI.

The development of these capabilities into common products and services over the past decade by some of the largest corporations in the world is what has led us to where we are now.

### AI is not going to make you redundant – yet!

One of the biggest concerns about AI

is that it will make humans redundant. After all, if our jobs require analysing and interpreting information and using it to make decisions, it's very probable that machines can now do it at least as accurately, and certainly much faster, than we can.

The truth, though, is that while some AI systems are good at some jobs, AI, in general, isn't quite good enough just yet to fully replicate the entire skillsets needed to do most work. Self-driving vehicles haven't been completely cracked yet – despite billions in investment and numerous companies getting to the trial stage, we aren't yet at the point where bus or taxi drivers are in danger of being immediately replaced. This is even more true for knowledge workers or workers in roles where there is an emphasis on human-to-human interaction, like nursing or teaching.

It's clear that some jobs are being replaced by automation – manual manufacturing work, retail cashiers, and bank clerks, for example, had seen machines take over much of their work, even before AI became as commonplace as it is today. At the same time, however, new jobs are created by the need to design, implement, sell, manage, and oversee technology and AI. Generally, these tend to be higher-paying, safer, more comfortable, and more rewarding jobs than those that are replaced.

### AI is going to affect your job, business, or industry

The worst error you could make today is to ignore the development of artificial intelligence and think that it won't have an impact on your career, company, or industry.

Whatever you do, AI is most likely going to have an impact, and it's crucial for individuals and businesses to think

about how it's likely to affect them. Failing to do so means we're likely to be overtaken by competitors or startups who have been quicker to adapt to the changing world. No one wants to end up the way Blockbuster Video did when Netflix arrived or Kodak after the arrival of digital cameras. Both were businesses that believed that encroaching existential threats to their core business models were simply fads that would blow over. AI is not a fad, and its impact is likely to be much further-reaching than that of streaming video or digital cameras, so we need to start planning for it right now.

### AI and electrical contractors

There are already many ways we can use AI tools and applications to augment and enhance our own work. If you are involved with creating reports or summarising information, then tools like ChatGPT can help with creating drafts, outlines, and lists of important points. Other generative AI tools are available for creating videos, music, and images, and they can all be used today by anyone working in creative fields or anyone who simply needs to communicate ideas quickly and efficiently. The standard of work they produce is probably not good enough to rely on to create finished pieces of work in many cases, but it can be used to speed up the early stages of ideation, designing, and drafting. It can give us instant answers and advice on just about any topic we might need to consider before we make a decision, manage our schedule, so we don't double-book ourselves or miss important appointments, and vastly speed up day-to-day routine tasks such as sending emails.

While electrical contractors fall into a bracket of industries which will always need humans (including



## Technical skills needed to tackle SA's youth unemployment crisis

Although South Africa's youth unemployment rate dropped slightly in the fourth quarter of 2022, the situation remains critical, with the latest Quarterly Labour Force Survey (QLFS) revealing that 4,6 million young people are looking for jobs. Considering that 90% of the country's employment opportunities require youth with technical and vocational skills, as reported by the Human Resource Development Council,

equipping them with these skills is crucial for reducing the country's unemployment rate.

This is according to Dr Andrew Dickson, Engineering Executive at CBI-electric: low voltage, who says that currently, technical skills are in dire need, particularly in the areas of electrical, mechanical, industrial, and civil engineering. In addition, there is an increasing requirement for artisans and technicians to support base operations

within the engineering disciplines.

This sentiment has been reinforced by President Ramaphosa who recently iterated that technical skills are what South Africa requires, stating that the skills that our country needs, the jobs that can grow our economy, and importantly, the avenues for entrepreneurship that are so sorely needed, can best be achieved by increasing learner access to technical and vocational subjects.



Dr Andrew Dickson, Engineering Executive at CBI-electric: low voltage.

"Unfortunately, however, Government is limited in its ability to bridge the skills gap, so the private sector needs to step in either by investing in institutions or individuals," says Dr Dickson.

He notes that, with state funding being reduced for universities and Technikons, additional support is vital. "This option may not appeal to shareholders; however, it is important to see the bigger picture where the value lies in investing in employees of the future who will be key for taking the country forward."

"Another option is for businesses to work with institutions by providing practical learning opportunities for graduates so that they learn how to apply the skills they have acquired," he adds. "For example, we provide training to Electrical Engineering students at Technical Vocational Education and Training (TVET) colleges around the country on electrical safety compliance as well as the practical use of products like circuit breakers, wiring accessories and earth leakage devices."

"Our holding company has taken this a step further with the establishment of Reunert College, which offers a bridging programme for school leavers from previously disadvantaged communities. It enables them to improve their Matric results which might otherwise have prevented them from getting a university exemption and/or from becoming employed," explains Dr Dickson. "Many participants who have successfully completed the programme have secured bursaries to study further."

When it comes to investing in individuals, he recommends that more industries consider making apprenticeships mandatory, like the accounting and law fields where new graduates are required to do their articles.

"For businesses that choose this route, it is important to note that they needn't shoulder the total cost alone, as Government provides support via the Skills Development Levy and the provisions of the Income Tax Act," says Dr Dickson. "But what this does require is that, if individuals are trained, they need to be placed in a position in a company thereafter."

"One of the biggest skills gaps plaguing the country, particularly in the technical and electrical environments, is a lack of practical know-how amongst new employees," he highlights. "In the past, this would be passed down by veteran employees, but as this practice is no longer in place due to factors like the brain drain and retirement of seasoned workers, inherent institutional knowledge is being lost. Mentorship must be provided to develop new hires into competent employees who can acquire these intricacies and, ultimately, pass them on to the next generation."

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



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## How technology is changing the electrical contracting industry

Technology has changed the way businesses operate and the construction industry is no exception. The construction industry now embraces technologies like smartphones, drones and computer-aided design in daily job management.

For electrical contractors, technology has helped streamline projects and create a more collaborative, more efficient, and safer job site. Specifically, we see technology informing our job estimating, manpower scheduling, materials handling, and prefabrication abilities.

### Virtual building information modelling (BIM)

With 3D Building Information Modelling (BIM) software like Navisworks, construction teams can layout a building in virtual space. You can virtually navigate a project in real time where you can see not only the electrical layer but also layers owned by other trades. You can run diagnostics to catch any areas of conflict that could potentially affect prefabrication work, timeline, manpower and costs. That's a big benefit to a customer.

Your team can collaborate more efficiently with other trades on the job, allowing each the time and space needed

to do their portion of the project right.

### Accuracy through robotic navigation and virtual construction

Robotic navigation and virtual construction have been growing in popularity in the construction industry. Using robotic navigation, you can take the approved BIM plan and pinpoint the exact physical location of every electrical panel and box in the building within the smallest fraction of a centimetre.

Using the four dimensions of virtual construction – length, width, height and time – you can create efficiencies with prefabrication and modulation. You can build the exact number of components offsite and deliver them directly to the points in the building – where they are needed and when they are needed.

### Digital planning, process and communication

Technology has changed our processes as well. You no longer have to wait for updated building plans. You can remotely access digital plans and don't need to wonder whether you are viewing the latest version. Everyone

from the front office to the field can view project changes in real-time and know the digital plans are accurate. You can even see a history of revisions in the form of digital overlays directly on the computer screen, laptop or tablet. You can see important project changes and catch potential issues as early as possible. Digital plans save paper and time and help us to avoid project delays.

Viewing a digital plan is more accurate and carries less human error; the estimating process alone can be improved by nearly 30% as a result.

### Leaner, safer, more agile

A leaner, more digital process can improve every aspect of a project from estimating and kick-off meetings to communications and timelines. Overall, modern electricians are using technology in very practical ways to enhance productivity and efficiency on every level.

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

## How apps improve construction site safety

If you feel like life happens through a smartphone or other device, there's a reason for that. It is because app software has become ubiquitous and can offer guidance or data about numerous everyday tasks.

In the construction industry, apps can play an important role in safety. Many construction companies are now using apps to help manage site safety. These apps provide workers with access to critical information, such as safety procedures and incident reports. They also allow managers to track worker performance and identify potential hazards. By using the right apps, construction companies can create a safe and productive work environment for their employees.

### Mobile apps on the job site improve safety and efficiency almost instantly

Around 97% of South Africans own a cellphone, and this usage translates directly to the workforce. With the majority of the workforce now carrying a mobile device, construction companies are turning to apps to boost safety and efficiency across all areas of operations.

Mobile apps on the job site improve safety and efficiency almost instantly by automating tasks, providing quick access to information and eliminating potential hazards. By using apps, construction workers can stay connected with co-workers, receive real-time updates on job site conditions and access company manuals and safety protocols from anywhere.

Apps can also be used to track time, inventory levels and project milestones. This data can be used to improve project planning and execution, as well as identify potential cost savings. In addition, by reducing the need for paper records, apps can help reduce environmental impact.

### Ensuring safety legislation compliance

All construction and building sites have risks associated with them, which is why it is important to ensure that workers and supervisors are adequately trained in compliance. This can be achieved by implementing safety apps on the site.

There are a number of different safety apps that can be used to help keep workers safe on building sites. One such app is called SafetyCulture iAuditor, which allows users to quickly create customised checklists and inspections based on their specific requirements. These checklists can then be used to identify areas of risk or non-compliance so that they can be addressed before an accident occurs.

Another popular safety app for building sites is SafetySync, which helps companies create and manage incident reports, hazard logs and corrective actions quickly and easily. Using this app, managers can ensure that all incidents are documented and investigated properly, and that corrective actions are taken to prevent accidents from happening in the future.

### Best apps for safety-conscious construction sites

As any construction worker knows, safety is paramount on the job site. And while there are always inherent risks involved in any construction project, there are a number of apps that can help make a job site safer.

1. Having a system in place that allows for easy and clear communication is essential. Scribe is an app that helps keep track of safety meetings and makes it easy to share information with any team.
2. iAuditor is a great app for conducting regular safety audits on a construction site. Simply create a checklist of all the safety hazards to check for, and then use the app to quickly and easily audit the site.
3. Safety Meeting App is another useful tool for construction safety. This app helps users organise and manage safety meetings so they can make sure everyone on site is up-to-date on the latest safety procedures.
4. Fieldlens is a valuable communication tool for construction sites. With this app, users can easily share safety information, such as hazard alerts or upcoming work schedules, with a team in real-time. This can help keep everyone informed and safe at all times.
5. Finally, the American Red Cross offers a comprehensive first aid app for construction workers. With detailed instructions and step-by-step videos on everything from treating burn injuries to administering CPR, this app is an essential tool for anyone working in a high-risk construction environment.

### Emerging safety technology

Health and safety technologies are continuously evolving to meet the changing needs of businesses and workers. As the workplace environment changes, so too do the risks associated with work-related injuries and illnesses.

One trend that is currently gaining traction is the use of wearable technology in the workplace. Wearable devices such as fitness trackers and smartwatches can provide valuable data that can be used to improve worker safety.

Devices that can detect falls can automatically alert supervisors, which can reduce the time a worker is hurt on-site and improve patient outcomes. The same technology can be applied to hardhats and helmets.

Other environmental parameters can be tracked as well. Fatigue can be approximated based on movement and temperature exposure, and send the wearer to the break room if it senses the worker is moving slowly, hasn't had a break in a while or if their biometrics are irregular.

All of this data is collected and digested with the help of mobile applications, since setting up large computer networks on a temporary jobsite isn't always practical.

### Summary


Overall, apps are making a big difference in construction site safety. Not only are they helping ensure workers are doing tasks correctly and safely, but they also help supervisors and executives make decisions at a higher level.

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## Fire safety measures for solar power systems

Solar power systems for homes and businesses are increasingly popular to mitigate the impact of ongoing loadshedding. However, for insurance purposes these need to be installed by an accredited installer or electrician, highlights ASP Fire CEO Michael van Niekerk. The onus is on home and business owners to ensure the installation is correct, especially in terms of accompanying gensets.

"There are several fire safety measures that should be taken into account to prevent the risk of fires when installing a solar power system," says van Niekerk. Firstly, solar panels must be installed by experienced professionals to prevent fires caused by faulty wiring or overheating.

It is important to use high-quality solar panels, inverters, wiring, batteries and other components from reputable manufacturers. "Inferior quality components, especially when it comes to lithium ion batteries, are more likely to malfunction, increasing the risk of a fire," says van Niekerk.

Another critical consideration is using properly sized and rated wiring in the installation to prevent overheating, short circuits or other electrical problems that can lead to fires. Wiring should be insulated, and conduit used where necessary to protect the wiring from the elements. Battery storage rooms must be fire rated to control a battery fire as these are exceptionally difficult to control and extinguish.

A good safety measure to consider is installing an isolation switch to shut the roof-mounted solar panels down safely in case of an emergency. Such an isolation switch must be clearly labelled and easily accessible, adds van Niekerk. The impact that solar panels have on smoke ventilation and emergency firefighting smoke ventilation in a soft roof building are also important factors to keep in mind when designing solar panel installations.

In addition, a solar power system must be grounded to prevent electrical shocks and fires. All metal components, including the



solar panels and storage batteries, must be grounded to a common ground point. Regular maintenance and inspection are critical to ensure all components function properly and to identify any potential fire hazards.

While back-up power supply such as gensets are in high demand during

loadshedding, it is important that such important equipment also be maintained and serviced regularly. "Genset failure due to a lack of proper maintenance poses a significant business risk," concludes van Niekerk.

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

## Innovation in electrical termination products for the mining sector

The global mining industry is facing complex challenges due to changing regulations, resource depletion and environmental impact concerns. To remain viable, the industry must adapt to new technologies, practices, and operational efficiencies. Pratley, a leading producer of electrical termination products, has acquired extensive expertise in its 75 years of existence. Much of this expertise is specifically related to demands placed on electrical termination equipment used in the mining industry.

According to Pratley Marketing Director Eldon Kruger, electrical termination products used in the mining industry should be developed with durability, safety, reliability, and innovation in mind. "We have developed a range of world-class electrical termination products that offer quality, value, and a high

degree of innovation to the mining industry, many of which are 'world-first' products."

Mining operations can be in harsh environments, such as extreme temperatures, high humidity, and corrosive conditions. Innovations that improve the durability and reliability of electrical termination products can help ensure they function correctly in these conditions. "The current priority for senior mining stakeholders is to keep pace and continue investing in innovation and technology where the efficiency, value and productivity gains are proven," continues Kruger.

Pratley pushes the boundaries of what can be achieved in terms of design engineering and safety. Cable glands and electrical junction boxes are safety-critical elements in any electrical reticulation setup. Designing these products by merely looking at the cable design can result in a near-sighted approach when a holistic one is needed.

Pratley remains dedicated to providing the mining industry with innovative solutions that meet their electrical termination needs. "A great example of this is Pratley's recently launched Taper-Tech® Flameproof Gland range consisting of four separate glands in two unique categories," explains Kruger.

The unique feature of this range is that all versions are fitted with Pratley's Taper-Tech® flame seal technology, consisting of tapered seals made from superior, Pratley-developed, high-temperature, and low compression-set elastomers. The seals all have a taper on the leading edge that abuts against the gland nipple taper on the inside. The taper on the bush and the one on the cable gland's nipple are angled differently.

This means that, under thrust or pressure from the front, when it is tightened, this differential taper allows the bush to slide down the taper easily, reducing the force needed to achieve radial compression.

"We use customer feedback as a basis to see what the market is looking for. We also draw on our own expertise to find gaps in the market and how we can fill these gaps. A parallel and agile development process allows us to push the boundaries of what can be achieved in terms of the most optimal solutions and products," continues Kruger.

Pratley operates two test and research laboratories at its Krugersdorp manufacturing facility, which places it in the top league of electrical-equipment manufacturers globally. The fully equipped laboratories are staffed by world-class scientists and technicians,



who are regarded as global experts in the science and standards of electrical equipment for hazardous areas. The electrical testing laboratory has the distinction of having state-of-the-art equipment to the extent that other accredited laboratories approach the company to make use of its advanced equipment.

Overall, innovation in electrical termination products for the mining industry is essential to ensure safety, efficiency, compliance, and cost-effectiveness in mining operations. "As such, this year Pratley will launch new products ideally suited to the ever-changing mining sector, at least one of which will be a world-first and game changer for electrical termination products," concludes Kruger.

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

## South Africa's first utility scale commercial and industrial wind farm begins construction

The ACED-IDEAS-Reatile Consortium has reached Financial Close with its Lender Rand Merchant Bank on the 69MW Msenge Emoyeni Wind Farm ("Msenge").

This marks the effective date of the Power Purchase Agreement (PPA) between Sasol South Africa Limited and Msenge for the supply of renewable energy to Sasol's Sasolburg site via a wheeling arrangement. The power Sasol is purchasing from Msenge will be used to secure renewable energy supply for green hydrogen production.

African Clean Energy Developments (ACED) represents a consortium of co-sponsors and equity investors consisting of ACED, African Infrastructure Investment Managers (AIIM) and Reatile Renewables (Pty) Ltd (Reatile). The Msenge Wind Farm is the first utility scale private wind farm in South Africa with its power wheeled across the national electricity grid. It is also the first of several renewables projects that the consortium intends to bring into construction in 2023.

ACED is a leading renewable energy developer that has already spearheaded the delivery of more than 1 200 MW of renewable energy under the Department of Minerals and Energy's REIPPPP process and 30 MW in the commercial and industrial market.

The energy will originate from Msenge wind farm, located near the town of Bedford, about 200 km North of Gqeberha in the Eastern Cape province of South Africa. The farm was originally developed by Windlab South Africa but has been acquired, further developed and financially closed by ACED and AIIM. ACED will also manage construction and another AIIM affiliate, Energy Infrastructure Management Services (EIMS), will manage operations once construction is complete.

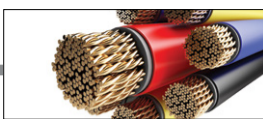
Aside from needing to resolve the country's power crisis, the South African government has prioritised the manufacturing of green hydrogen for strategic industrial usage. Sasol, the ACED-IDEAS-Reatile Consortium and Msenge Wind Farm are playing a role in both. Green hydrogen is a key component of a low carbon energy sector which will enable the decarbonisation of critical sectors of South Africa's economy. Sectors that will benefit include hard-to-abate industries such as transport, refining of metals and cement, heat generation and back-up power supply.

James Cumming, ACED's General Manager, highlights: "ACED is very proud to have reached financial close and construction commencement on this much needed South African first, and we look forward to getting to the commercial operation date on Msenge for Sasol. It's an amazing achievement by a large team of many businesses and advisors, that comes with a huge amount of hard work and sacrifice that we are very grateful for. We look forward to doing more of that in 2023 and beyond!"

AIIM Investment Principal Sechaba Selemela noted that the transaction was significant as it represented AIIM's ongoing commitment to finding alternative energy solutions to South Africa's current electricity crisis. "It also enables South Africa's transition towards greater energy security based on clean energy production," Selemela said.

Through the IDEAS Fund, AIIM has funded projects which together contribute around 25% of the renewable energy currently powering South Africa's grid and abating higher levels of load shedding on a daily basis. The Fund currently has a renewable energy portfolio valued at more than R 10 billion.

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



## Cabling that empowers customers and suppliers

Versalec Cables is one of the leading electrical cable distribution companies in South Africa with offices in Johannesburg and Cape Town. The company was founded as a stand-alone specialist company in 1985 by Trevor Schmidt. Today, Versalec, having developed a strong partnership with the local manufacturers, is able to supply a complete range of electrical cable from low voltage copper and aluminium PVC insulated cables to PILC and XLPE (11 kV-33 kV) cable as well as aluminium overhead conductors for various line applications and service connection cables.

Historically, Versalec Cables became part of the Bidvest Group in 2005, with Bidvest owning 74% and Versalec retaining 26%. The company became fully-owned by Bidvest in 2010 and is now part of the Bidvest Electrical Division. In terms of the BEE status, Versalec is currently a Level 3 contributor, AAA rating, qualifying for 125% procurement recognition level.

Versalec customers mainly consist of a select group of electrical contractors and consulting engineering firms involved in electrical reticulation projects and Renewable energy projects. As such, Versalec Cables is able to provide comprehensive commercial proposals with supporting technical data as appropriate, customised to the needs of each particular project. In addition, the company can assist electrical engineering consultants with budgets related to forthcoming projects.

Versalec offers the additional service of delivering cable to site with its own crane trucks, operated by trained personnel, ensuring that correct off-loading and handling techniques are adhered to, as required by the manufacturers.

With a team of dedicated, hardworking and experienced staff, Versalec Cables continues to strive towards service excellence, empowering both customers and suppliers with confidence and trust.

### Low voltage cable offering

**PVC Bells & Mains (Copper & Aluminium):** Electrical and physical properties of 3 and 4 core PVC insulated PVC bedded SWA PVC sheathed 600/1000 V cables with aluminium or copper conductors and manufactured to SANS 1507-3. (Where the armouring of cable is used as the earth continuity path, it may be necessary to replace some of the steel wires with tinned copper wires (ECC) or to use a supplementary earth continuity conductor.)

**PVC Multicore:** Electrical and physical properties of Multicore PVC, insulated PVC, bedded SWA PVC, sheathed 600/1000 V cables with stranded copper conductors manufactured to SANS 1507. (Where the armouring of a cable is used as the earth continuity path, it may be necessary to replace some of the steel wires with tinned copper wires (ECC) or to use a supplementary earth continuity conductor.)

### AIRDAC:

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**House Service Connection Cable:** Circular stranded hard drawn copper phase conductor, XLPE insulated with concentrically arranged identified bare earth conductors. Polyethylene sheathed 600/1000 V house service connection cable. Nylon ripcord laid under sheath. Manufactured to SANS 1507 and NRS 062.

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- Lower mass – due to smaller diameter –

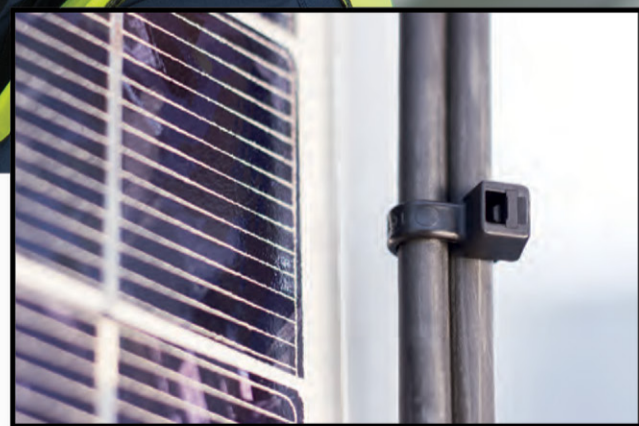
no steel wire armour.

- Increased safety – reliable earthing.
- Improved reliability – UV stable sheath and core insulation.
- Tamper and vandal proof – unauthorised access to phase conductor inhibited by concentric layer.
- Easy strip with nylon ripcord.
- \*Assuming worst conditions, i.e., -5.5°C with simultaneous wind speed of 31 m/s and measured at midspan.
- UTS = Minimum ultimate tensile strength. Safety factor for 2.5.
- MWT = Minimum working tension.



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## Proven Performance in Solar Installations

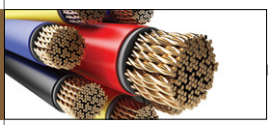
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### Hybrid cables save installation space

Motion plastics and cable manufacturer, igus has introduced its new readycable hybrid cables suitable for drive technology from Siemens and SEW-Eurodrive.

Save installation space and weight with just one cable for power and data: it's easy with harnessed igus readycable hybrid cables. New to the range are ready-to-connect cables suitable for SEW-Eurodrive

with MOVILINK DDI and Siemens SINAMICS S210 with OCC. In addition to PUR, the latter is also available with an outer jacket made of cost-effective PVC. Macros for the EPLAN Electric P8 software speed up cable planning by around 50%.

Reducing the complexity of automation solutions while saving money, time and installation space is a declared goal of engineers all over the world. This applies to cable planning as well. Here, so-called hybrid technology has become one of the major trends in recent years. While servo drive systems used to require several cables to transmit energy and data, hybrid cables simply combine the cores.

"Hybrid technology is a pioneering

development that we, as a cable specialist, are one hundred percent convinced is the way to go," says Ian Hewat, managing director of igus South Africa. "We are therefore continuously expanding our portfolio of ready-to-connect hybrid cables from the readycable series in order to offer our customers a fast, reliable, cost-effective solution for continuous use in energy chains."

The latest addition to the readycable series includes two models: a hybrid cable for motors from SEW-Eurodrive with the MOVILINK DDI interface, and a hybrid cable for Siemens servo drives suitable for SINAMICS S210. In addition to PUR, the outer jacket can be made of the lower cost PVC.

To save even more project planning time, igus also provides direct links to the macros for the EPLAN Electric P8 planning software on its website. This allows the cables to be dragged and dropped into the digital cable plan as building blocks, reducing cable planning time by up to 50%. Like all cables in the readycable series, the new hybrid cables have a strong outer jacket, a strain-relieved core, movement-optimised stranded wires, a stranded structure with a short pitch length and a gusset-filling extruded inner jacket.

"This design and these high-quality materials make our new hybrid cables failsafe in continuous use in energy chains, even in compact applications," says Hewat. Materials with good electromagnetic compatibility prevent the energy and data transmission cores from having a negative influence on each other. All models have undergone several million test cycles in the igus 3800 m<sup>2</sup> test laboratory. igus therefore offers an above-average chainflex cable guarantee of 36 months. The company also provides an online tool with which customers can calculate the expected service life of their specific application.

#### Fire safety approval for halogen-free TPE cables

In other news, igus, has received UL AWM certification from the well-known US organisation Underwriters Laboratories (UL) for its high-end TPE cables that do not use fire-retardant halogens as additives. This is the first time the testing organisation has recognised that halogen-free TPE cables can also meet fire protection requirements in industry.

UL is one of the most important authorities in the USA in terms of product safety. It has been testing components of machines and systems since 1894 to see whether they are suitable for

CONTINUED FROM PAGE 1

### WHAT YOU REALLY NEED TO KNOW ABOUT AI IN 2023

teachers, writers and editors, lawyers, social workers and medical professionals), AI could still play an enormous role in the electrical field going forward. One essential area where AI can be incredibly beneficial for electricians is in safety management. A significant part of an electrician's job involves working with potentially hazardous electrical systems and materials. AI could be used to analyse electrical systems and identify potential safety hazards before they cause harm. This technology could flag issues such as overloaded circuits, under-sized wires or cables, and other potential safety issues. Furthermore, it can also help predict when equipment maintenance is necessary, reducing the likelihood of human error and accidents.

AI can also play a pivotal role in streamlining the efficiency of electricians. Using AI software, electricians can promptly analyse data from various electrical systems and make critical decisions in real-time. This kind of functionality can significantly reduce the time needed to diagnose and troubleshoot electrical issues, allowing electricians to complete tasks efficiently and cheaply. Moreover, AI can use historical data to predict equipment failure that may be based on wear and tear, helping electricians make strategic replacements and repairs.

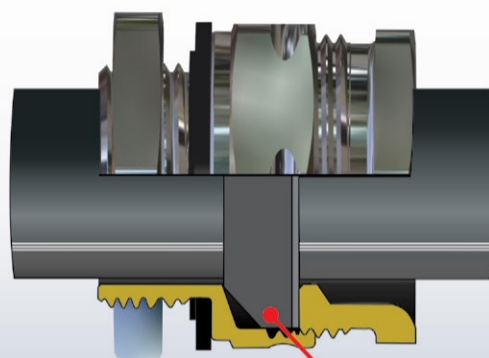
In addition to safety and efficiency, AI can also help improve accuracy in the work of electricians. In electrical work, precision is crucial, and even small mistakes can be costly or pose safety risks. With AI-enabled software, electricians can reduce the likelihood of mistakes by automating routine tasks such as checking the resistance and conductivity measurements of electrical equipment. This kind of automation reduces the likelihood of human error and provides a level of accuracy that is difficult to achieve with manual processes.

The implementation of AI in the field of electricians holds significant potential for the industry. By increasing safety, improving efficiency, and enhancing accuracy, electricians can complete jobs faster and more cost-effectively, leading to a more streamlined and efficient industry. However, electricians should embrace these advancements as an opportunity to supplement their work, rather than a replacement for their expertise, as human intuition and judgment are still critical in identifying certain issues. As AI continues to mature, it will undoubtedly transform electrical work and industry as a whole for the better.

Adapted from an article by Bernard Marr, originally published on [www.forbes.com](http://www.forbes.com)

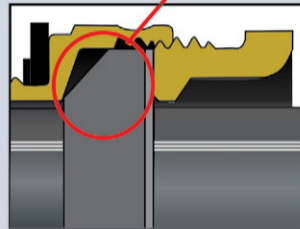


# PRATLEY®



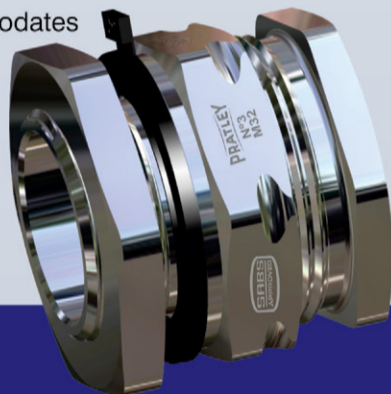
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## MV XLPE CABLE

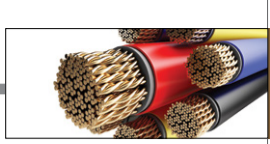
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industrial use, and its seal is one of the prerequisites for successful market entry into North America. Fire protection is a key decisive criterion. This is because, according to the US National Fire Protection Association (NFPA), machine fires are the fourth leading cause of fires in industrial environments in the USA, closely followed by fires caused by electrical factors. "That is why we are particularly pleased that igus has now become the world's first manufacturer to receive a UL seal for halogen-free TPE cables," says Rainer Rössel, vice president and head of the chainflex

cables business unit at igus. "The approval demonstrates to our customers that they have the safety aspect covered with chainflex high-end TPE cables."

For this certification, the igus engineers had to do a lot of persuading. Up to now, the flame retardancy of cables has been the key factor in obtaining UL certification for fire protection. Approval is therefore only granted to products containing flame retardants such as chlorine, fluorine or bromine, as these additives increase the flame retardancy. However, so far it has not been taken into account that the flame retardants generally change the chemical structure of the jacket and reduce the mechanical load-bearing capacity.

Therefore, igus starts much earlier in the process: the cable specialist focuses less on preventing a fire from spreading, but rather on how the cable itself caused the fire. The TPE jacket compounds from igus are extremely resistant to mechanical loads as well as external influences. They can therefore be used in a wide range of applications: in small installation spaces of up to 4xd, on highly dynamic, short travels with accelerations of 100 m/s<sup>2</sup> or on

long travels in a temperature range from -35°C to +100°C.

At the same time, they are extremely resistant to the medium, even with special organic oils. In all of these energy chain applications, the halogen-free TPE jacket compounds from igus minimise premature ageing of the outer jacket by a factor of up to 10 when compared to the same materials containing flame retardants. A decisive cause of fire is thus reduced, because if the jacket does not break, the cable cannot cause a fire because a reduction in the cross section of the cores is impossible due to the non-existent jacket break.

The long-term flexural strength and service life of chainflex cables in the e-chain have been proven by numerous practical tests in the in-house igus test laboratory – and not just for TPE cables. "So far, customers have already had the opportunity to choose from 1044 chainflex cables with UL approval," Rainer Rössel points out. "With the new certification, there are now more than 200 TPE cables, so we can offer an almost complete UL certified product range."

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

CONTINUED FROM PAGE 5

**\*SNE Cables**

House Service Connection Cable (with or without pilot cores): Circular stranded hard drawn copper phase conductor, XLPE insulated with concentrically arranged identified neutral and bare earth conductors. Polyethylene sheathed 600/1000 V service connection cable. Nylon ripcord laid under sheath. Manufactured to SANS 1507 and NRS 063.

- Small overall diameter – concentric construction (SNE – Separate Neutral Earth).
- Lower mass – due to smaller diameter – no steel wire armour.
- Increased safety – reliable earthing.
- Improved reliability – UV stable sheath and core insulation and water blocked.
- Tamper and vandal proof – unauthorised access to phase conductor inhibited by concentric layer.
- Easy strip with nylon ripcord.
- Assuming worst conditions, i.e. -5.5°C with simultaneous wind speed of 31 m/s and measured at midspan.
- UTS = Minimum ultimate tensile strength.
- MWT = Minimum working tension.

**Bare Copper:** High conductivity plain soft stranded copper conductors to SANS 1411

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

## SA manufactured cable glands for NASA's Artemis Mobile Launch Platform



50 years ago, on 14 December 1972, man last walked on the surface of the moon and NASA's Apollo lunar space programme drew to an end. In the same year, CCG was founded in South Africa and first started manufacturing Captive Component Glands.

NASA has committed to returning to the moon by 2025 as part of its Artemis space programme, which is the first phase of its plans to send humankind to the moon and on to Mars. The programme requires a massive investment in new rocket

and spacecraft technology as well as the Ground Launch Control Systems – GLCS – and the Mobile Launcher known as the ML2.

ML2 is the primary interface between the GLCS and the Space Launch System – SLS – rocket and the Orion spacecraft. It serves as the platform for all SLS and Orion integrated stacking operations, as well as structurally supporting the stack during prelaunch preparations, its roll out onto the launch pad and during the launch procedure.

ML2 and all its related mission critical equipment is designed to



stabilise the rocket and spacecraft, which weighs about 2 700 tons once loaded with liquid hydrogen (H<sub>2</sub>(l)) and liquid oxygen (LOx) and must also withstand the severe launch blast environment during lift off.

Multiple umbilicals on the swing arms on the ML2 tower will provide the critical power, data, remote monitoring and control, propellants, fluids, gases, sound suppression, imagery, and communications necessary for launch.

Sitting in the Launch Control Centre's Firing Room 1, the launch team will send remote commands to the SLS rocket and the Orion spacecraft via the ML2 tower umbilicals. Bechtel Corporation is the primary contractor building the tower, a structure some 110 m tall and weighing about 5 200 tons. NASA's Exploration Ground Systems is overseeing the build to support the first launch of a Block 1B SLS rocket, scheduled for Artemis IV. The structural design of the ML2 will incorporate many lessons learnt, and modifications made, from ML1, which was used to launch Artemis 1 on 16 November 2022.

Equipment used on such a prestigious space project has to perform to the highest engineering standards. Based on a proven technical design, Bechtel Engineering and Sidus

Space selected CCG cable glands for installation on unique electrical and electronics cabinets that will support the launch control subsystem and ground special power subsystems. To ensure mission critical power and data cables are terminated and perform under the most arduous conditions

experienced during launch, independent performance testing for extreme high and low temperatures, pressure testing to the equivalent of 85 atmospheres,

high pull-out loads and vibration resistance tests to North American and various other international certification standards were considered essential.

In the 50<sup>th</sup> anniversary year of CCG's founding and of NASA's last lunar landing, CCG is honoured to be involved in a small part of one of humankind's greatest technological and exploration challenges of sending people once again to the moon and future manned missions from the moon on to Mars.

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

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CAPTIVE COMPONENT GLANDS

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**50**  
YEARS IN BUSINESS  
1972 - 2022

**CCG COMPRESSION GLANDS**

Specially formulated tapered seals

- High cable retention loads.
- Extreme temperature range.
- Vibration resistant.
- Pressure tested to 85 atmospheres.

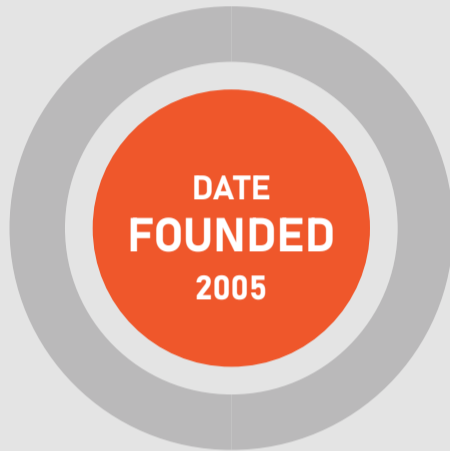
Securing power to the NASA Artemis Mobile Launch Platform

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**measure with confidence**



**Partnering with the Comtest Group of Companies**, you are assured of working with an organisation that holds itself to the highest standards regarding professionalism, work ethics and business principles. We strive to develop lasting relationships based on trust: two-way communication that is beneficial to both parties.

We are a world-class team. Our sales force is of the highest calibre and receives all the support and training required to ensure they are up-to-date with the latest products and can offer valued advice, assistance and after-sales support. From factory-trained people with specialist knowledge and expertise relevant to the South African market to internally trained members that assist with backup sales support. The office support team is one of a kind where customer service comes first. Whether in the benefit of our team or our customers, the support team goes the extra mile.

The Comtest Group partners with international manufacturers and provides equipment and project solutions to the Southern African market. This includes test-and-measurement equipment in the electrical and electronic markets, infrastructure monitoring test equipment and process control systems.

Comtest Distribution – through its network of channel partners – services the industrial market, with support and training.

Comtest Technologies and Comtest Solutions provide electrical, electronic and communications test equipment, and solutions directly to end users and offer after-sales support and training.

Instrotech and Calog Instruments manufacture and distribute a range of process control instrumentation and specialised systems to the South African and international markets.

## Social media:





## Fluke

Since 1948, Fluke has helped define and grow a unique technology market, providing testing and troubleshooting capabilities that have grown to mission-critical status in manufacturing and service industries. Every new manufacturing plant, office, hospital, or facility built today represents another potential customer for Fluke products.

From industrial electronic installation, maintenance and service to precision measurement and quality control, Fluke tools help keep businesses and industries around the globe up and running. Typical customers and users include technicians, engineers, metrologists, medical-device manufacturers, and computer network professionals – people who stake their reputations on their tools, and use tools to help extend their personal power and abilities.

The Fluke brand has a reputation for portability, ruggedness, safety, ease of use and rigid standards of quality. The Fluke product lines are beneficial for professionals in a variety of markets due to their reputation for portability, ruggedness, safety, ease of use and rigid standards of quality.

### Industrial/electronic service installation and maintenance

Today, electronics are integrated into an increasing number of electrical and electro-mechanical systems. Fluke's comprehensive line of digital multimeters, electrical power analysers, thermal imagers, insulation resistance testers, and accessories, plus the integrated ScopeMeter™ handheld test tools, are being used by a growing number of service technicians, plant engineers and installation and maintenance technicians. These tools provide them with the ability to troubleshoot these complex new systems and detect problems quickly.

### Electrical and temperature

Electricians, HVAC/R technicians, plant engineers and power quality consultants involved in the maintenance, service, and design of every type of residential, industrial, plant and commercial building use Fluke professional test tools. Fluke products such as electrical testers, digital multimeters (DMMs), clamp meters, single and three-phase power quality meters, ScopeMeter™ test tools, current clamps, thermal imagers, digital thermometers, and DMM accessories are designed for day-to-day field troubleshooting and maintenance of electrical systems, electrical power systems, HVAC/R systems, and associated equipment. Fluke products help electrical technicians analyse, troubleshoot, and repair these systems for optimum performance.



## Amprobe

The place to find great quality testing tools for electricians. With a combined experience of over 100 years, well-known German brand Beha and US-based Amprobe have a track record to be proud of. Now we have joined forces, and together we are committed to making your job safer, faster and easier than ever. Beha-Amprobe expertise are legendary, from multimeters to voltage detectors, at Beha-Amprobe they are constantly improve their designs to provide you with the very best quality tools and support.

### Innovative testing tools for electricians

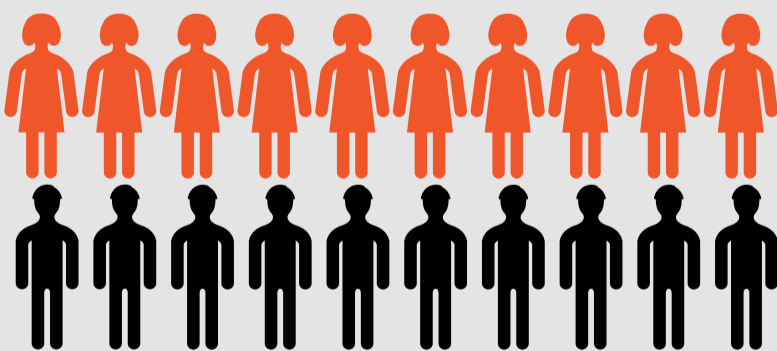
Whether you need testing tools for industrial, commercial or residential applications, at Beha-Amprobe they offer innovative test equipment to fit your needs. All of their tools undergo rigorous testing to ensure the quality and safety you know and trust.

Beha-Amprobe products are sold and supported by a wide range of dealers and are backed up by a professional support service. This makes Beha-Amprobe the right place for installation testers, appliance testers (PAT), voltage detectors and continuity testers, digital multimeters, clamp meters and thermometers, for taking measurements in residential, HVAC, electrical and industrial applications, and many other testing tools.

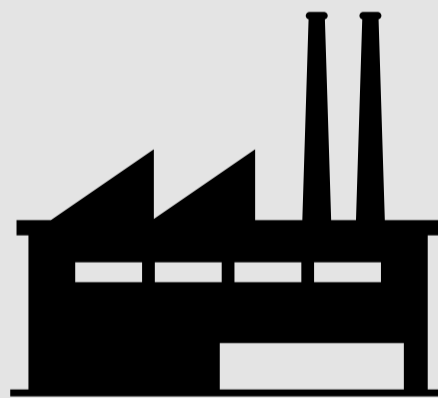


## Number of staff employed:

Around 50



## Size of factory:



## Contact details

10 Enterprise Close, Linbro Park, 2090 | [www.comtest.co.za](http://www.comtest.co.za) | [online@comtest.co.za](mailto:online@comtest.co.za) | +27 (0)10 595 1820



## ERWAT pursues greater efficiency with WEG motors

WEG premium efficiency electric motors from Zest WEG are assisting South African water utility ERWAT to respond positively to rising electricity costs at its water treatment plants.

The roll out of WEG's reliable W22 low voltage (LV) motors at ERWAT's plants will also contribute to improving the general performance of the plants, according to Dillon Govender, sector specialist in public sector business development at Zest WEG.

"Our WEG W22 motors are constantly improving in terms of their energy efficiency," says Govender. "Not only have we made our WEG IE3 top premium efficiency motors in this range available to the local market, but now also offer our WEG IE4 super premium efficiency motors at no extra cost."

Key to ERWAT's decision to install these motors was Zest WEG's local assembly plant and high levels of local inventory which ensures quick and reliable supply. Another factor was the standard five-year warranty that Zest WEG provides

with the motors. The company also equips the motors to withstand the demanding conditions of operating within the water sector, he says.

"It is important that our W22 motors are readily available 'off the shelf' to ERWAT, so there is no delay in delivering the equipment as and when they need it," he explains. "Our warranty provides peace of mind, giving ERWAT the certainty that these motors will provide maximum uptime for greater plant productivity."

Govender highlights the value of staying abreast with energy efficiency gains in motor technology as a high proportion of the total cost of ownership is the running cost – which is mainly the cost of electricity.

He notes that the energy savings when using the WEG IE4 super premium efficiency motors reduce their payback times to as little as a year. From this perspective alone, it does not make commercial sense to keep repairing older, less efficient motors.

"In addition to reducing energy consumption, these WEG LV motors also reduce the carbon emissions related to electricity generation in South Africa," he says. Migrating from the W22 IE3 model to the W22 IE4 is also seamless, as the critical dimensions do not change. The WEG W22 IE4 super premium efficiency motors are



WEG IE3 top premium efficiency and WEG IE4 super premium efficiency motors are readily available ensuring minimal lead time to the market.

designed according to the DIN EN 50347 standard which means it can replace an IE1, IE2 or IE3 motor with similar frame sizes, and as a result no modifications are required when mounting the motors to the base plate.

To operate effectively in a water treatment plant, the motors must also withstand the wet, damp or corrosive environment. This could require solutions ranging from the use of specialised epoxy paint and internal tropicalisation measures, to the supply of canopies for vertical applications.

"Water treatment plants in South Africa also have to contend with the disruption of regular loadshedding, which can reduce their ability to treat the required volumes each day," says Govender. "This means that these operations can no longer afford unplanned downtime."

He concludes that the installation of WEG's W22 LV motors will ensure not only higher energy efficiency, but also greater reliability for smoother and trouble free pumping.

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

## A leading electrical board design and manufacturer

Over the years, Switchboard Group has built a solid reputation for premium quality electrical board design and manufacturing, superb service and customer support, and intelligent solutions to electrical board requirements across a broad range of industries and applications.

The company has been in business for more than 50 years, and is uniquely qualified to provide its clients with one-stop service, from conceptual design and switchgear manufacture to the installation and commissioning of projects. Because Switchboard Group doesn't have to outsource, its clients save valuable time while benefiting from competitive pricing and direct project communication and feedback.

Since 1963, Switchboard Group has been the trusted choice for electrical boards of all sizes and specifications, servicing clients both locally and internationally. Its manufacturing can be tailored to suit your precise requirements, and Switchboard Group makes it its goal to build long-lasting relationships while ensuring peace of mind for all its clients.

Switchboard Group is the only South African electrical board manufacturing company with on-the-ground facilities in Johannesburg, Cape Town, and Durban, giving its customers the advantage of easier access and faster turnaround times in key geographical areas. In addition, its highly specialised drafting and design team is able to work closely with infrastructure designers and developers – or simply to provide smart solutions to complex or difficult situations.

Switchboard Group does not subscribe to a 'one size fits all' approach and is equipped to design unique components and installations that dovetail precisely with the needs of every client. The company is happy to provide expert advice and to consult with contractors and developers on projects of any size.

Its components and assemblies are SABS tested and approved, meeting the highest engineering standards, and while being fully



equipped for innovation and adaptability, the company conforms strictly to established industry protocols and practices. Switchboard Group is constantly developing and sourcing new products, in order to cater to an ever-growing client base with a diversity of requirements.

Its service crews are on 24-hour standby, enabling the company to respond quickly and efficiently to emergency situations, containing damage and restoring functionality as quickly as possible. Its ability to provide the highest levels of service, combined with fast diagnostic expertise and component replacement by highly qualified technicians, means that its clients are assured of rapid restoration of services in the event of an unforeseen malfunction or crisis.

### A client focused approach

At Switchboard Group, teamwork is more than just a catchphrase or corporate philosophy – it's a practical system of interaction and growth, with its teams and its clients. From initial enquiry to design, manufacture, installation and its proven after sales service capability, its goal is to ensure that reliability and trustworthiness are at the forefront of its client relationships.

### The trusted choice for electrical boards in South Africa

Switchboard Group uses state-of-the-art CNC punching machines, advanced design and production technology, and precision engineering, which means that you have access to a turnkey service with rapid turnaround times and an exceptionally high degree of quality throughout every phase of our production and installation process. It's no coincidence, then, that the company is the largest manufacturer of electrical boards in Southern Africa.

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

## Design, manufacture and installation of MCCs

### Motor Control and Automation (MCA)

designs, manufactures, assembles, tests and certifies its medium and low voltage assemblies to international standards of excellence. The company is able to provide solutions in standard compartmentalised metal or polycarbonate enclosures for high degrees of protection as well as outdoor applications.

Since its establishment in 1994, MCA has become a market leader in its industry, specialising in the fabrication of low voltage motor control centres, power distribution boards, variable speed drive enclosures, automation, mining and specialised applications.

MCA is the recipient of various industry awards. MCA will continue to optimise its operations as one of the largest Independent Switch Board Manufacturers in South Africa, in order to concentrate even more on growth markets.

As a proud member of ESASA since 2009, MCA regularly contributes to the local technical and industry committee regarding compliance issues and specifications, and to conduct itself as a leading

supplier to all industries seeking professionalism, quality products and workmanship.

### Low voltage switchgear

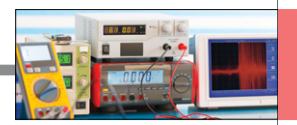
Low voltage switchgear Type: SIVACON S 8 – up to 1000 V 150 kA SIVACON S8 is a synonym for safety at the highest level. The low voltage switchboard is a design-verified low voltage switchgear and control gear assembly in accordance with SANS-IEC 61439-2. Design verification is performed by testing. Its physical properties were verified in the test area both for operating and fault situations. Maximum personal safety is also ensured by a test verification under arcing fault conditions in accordance with IEC/TR 61641. (Ed 3).

### Containerised solutions

To reduce start-up and commissioning time on site, MCA offers various integrated container/e-house solutions, what it calls a "Plug and Play Solution" on site. The containers can be equipped with MCC's, VSD's distribution panels, control panels, UPS system for both MV and LV installations. Containers/e-houses are customised according to the client's requirements; size, colour, air conditioners, insulation, doors, windows, floor, cable entry, etc.

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





## Multi-million Rand cross-border project

Towards the end of 2023, Iritron won a multi-million Rand tender. The electrical portion of the scope of supply was successfully delivered to Comilog in June, with the remaining instrumentation and any ad-hoc items scheduled for delivery in August.

Iritron has a history of delivering large engineering projects globally, and this project is no different. The project – designed by Hatch, a global multidisciplinary EPCM consultancy – tasked Iritron in late 2021 with delivering a solution that comprised multiple engineering disciplines with tight deadlines: electrical motor control centres, a control system, CCTV and network cabinets form part of the delivery.

Frits Stoop, Iritron's engineering and project manager, explains that a project of this magnitude has unique challenges. "Iritron was impacted by worldwide semiconductor shortages which created logistical challenges due to supply chain disruptions and capacity shortages. The ongoing pandemic and port congestion did not alleviate the problem either. This required the team to turn our operations 'upside down', in the literal sense, to keep to timelines."

What is meant by that statement is that the team started work on the MCCs in reverse – activities usually scheduled for the end of a build were completed first. This was a testament to the ingenuity of the project and the engineering team, as no time was wasted waiting for equipment to arrive.

The team got ahead through its technical expertise and proven design methodologies, to ultimately reduce overall project risks posed by the supply chain bottleneck. It implemented highly innovative action plans to deal with these challenges. "We assembled what we could and shipped it off in sections to site, ready to have the outstanding equipment installed on site

when it arrived," he explains.

He adds that the floods in KwaZulu-Natal also presented logistical challenges at the Durban harbour. This posed a problem getting the MCCs packed, inspected and shipped to Gabon. The team thus worked to ensure that its operations were not impacted, with the first portion of the equipment already shipped to the client. "We were assisted by our logistics company, and our first shipment left in May.

"Engineering projects of this scope and scale will present challenges, and only companies with experience and a proven track record get the opportunity to

successfully execute such projects." Stoop adds that this large project was awarded to Iritron owing to its proven engineering expertise and experience in this type of delivery, as executed on a previous project for the same client.

"Three aspects catapulted Iritron above the rest for this portion of the project bid: price, previous experience and quality. We had good experience with the client on a previous engagement, and the quality of our technical expertise and manufacturing is trusted."

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



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



# MOTOR CONTROL CENTERS

Quality and High standardisation rate



The LV MCCs are designed for various market segments, fulfilling quality and performance requirements compared to the best products available internationally. Highly standardised, these products were designed to provide easy assembly, installation, maintenance and future extensions.

The products are factory assembled and tested up to 690 V and were developed to meet the requirements of IEC61439 and/or IEC61641 standards if required, while preserving the flexibility in adapting to the different characteristics demanded by the market.

**Driving efficiency and sustainability.**



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## Motor control centres and power distribution

Elsteel Motor Control and Power Distribution Assembly (Low Voltage Assemblies) is a patented 200mm grid modular system for the switchboard manufacturing industry, successfully tested to IEC 61439-1/2 up to 7100A 100kA / 1 sec. All major brands of breakers, contactors, relays etc., fit perfectly into the motor control center and power distribution assembly.

Not only do ATI Systems supply the Elsteel framework in a flat-pack option or fully assembled, the company also stocks a substantial range of VSDs (ac drives, dc drives) and soft starters that allows it to provide a complete Motor Control solution at competitive prices. All of which are backed by qualified Drive Technicians for support, drive system design, repairs, commissioning and training.

The Elsteel Techno Module is now fully verified by SABS, according to the IEC/SANS 61439 Series. The Elsteel MCC (Low Voltage Assembly) is modular in steps of 200 mm increments in all three directions, which means that there is no limit to the possibilities and positions.

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

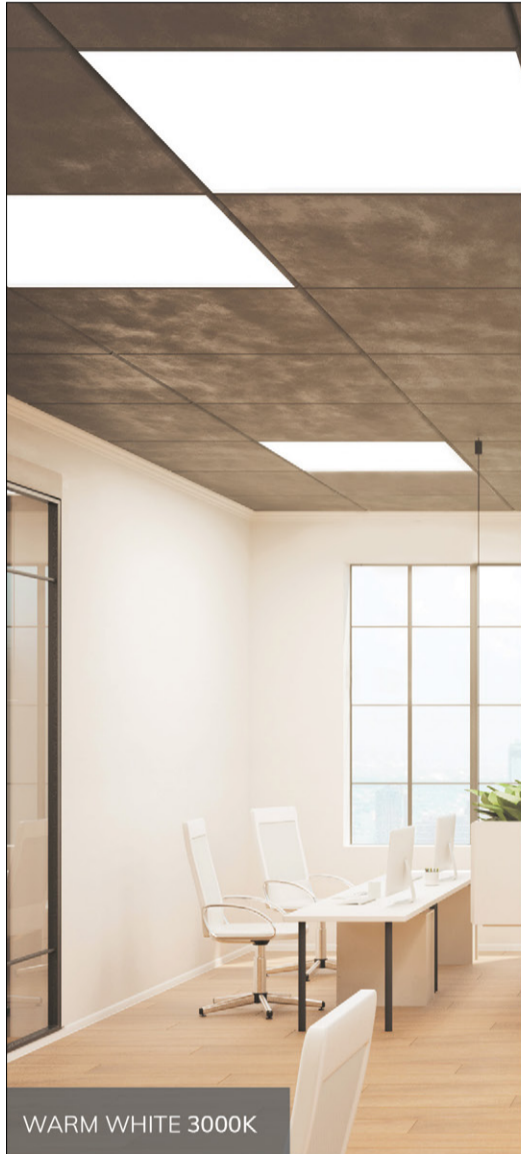
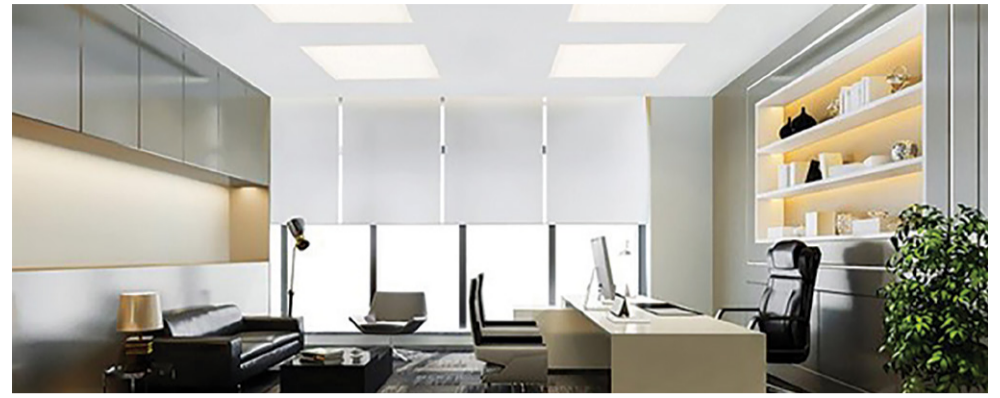


## Six reasons to install panel lights

Adopting a more conscious approach when illuminating our home and work environments comes with a multitude of benefits. It saves money and is better for the environment and our health. Panel lighting is a fixture option that is both energy-efficient and economical and should be considered for professional environments such as offices, schools, shopping malls, medical practices, libraries

and a host of commercial spaces. It's also becoming increasingly popular in residential spaces like garages, bathrooms and kitchens. These are some of the reasons to consider installing them...

**They are cost-effective:** LED panel lights dissipate less heat in comparison to fluorescent fixtures. This means that they consume less energy, and will therefore reduce your electricity bill. In addition, they



WARM WHITE 3000K



COOL WHITE 4000K



DAYLIGHT 6500K

EXPERIENCE COLOUR CHANGING TECHNOLOGY IN THESE NEW BACKLIT LED PANEL LIGHTS



600mm x 600mm

RPR360

3CCT LED Backlit Panel  
40W, 4000 Lumens



1200mm x 300mm

RPR361

3CCT LED Backlit Panel  
40W, 4000 Lumens



1200mm x 600mm

RPR362

3CCT LED Backlit Panel  
60W, 6000 Lumens

The three-colour changing technology on our new LED panel lights means you can select from Warm White, Cool White or Daylight settings through a CCT in-line switch. These ceiling lights are flicker-free and available in 3 sizes. All are covered by a 3 year warranty, terms & conditions apply. Radiant Lighting offers an extensive product range to meet your architectural and building project requirements. Our lighting specialists offer professional and technical advice from specifying, on-site supervisory to after sales service. Let us take your project to the next level.



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operate using LED diodes and there are no tubes to replace, eliminating maintenance and installation expenses.

**They have a long lifespan:** These fixtures have an impressive life span of up to 100 000 hours. This works out to about 27 years if the lights are switched on for seven to eight hours per day.

**They are shock resistant:** The shock-resistant nature of LED panel lights is due to the fact that they are usually manufactured using a hard resin. This design feature also helps control the temperature and makes them particularly difficult to damage.

**They are eco-friendly:** LED panels are low-energy consumption fixtures that use eco-friendly technology. Throughout the manufacturing process, minimal pollution is generated and there is no mercury in the end product. One panel is the equivalent of six fluorescent bulbs. By using fewer bulbs, the voltage requirements of the home or office space are lowered.

**They are easy to maintain:** Cleaning an LED panel light is easy. Simply wipe the panel with a damp cloth to maintain it.

**They produce quality illumination:** LED panels are flicker-free and diffuse light well. Because they don't flicker like their fluorescent counterparts, they minimise headaches and allow the occupants in the room to concentrate for longer and maintain their energy levels.

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

## Slash air conditioning bills: Install LED lighting

Heat emission, or lack of it, is often an issue in horticultural lighting. But in beer making? Yes, of course!

Just ask Norway's Aass Brewery. It replaced 400 58 W T8 fluorescent tubes in its beer storage area with the equivalent 400 LED luminaires, and in so doing managed to slash its cooling bill.

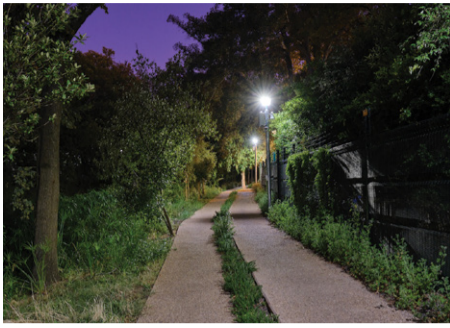
Combined with already considerable electricity savings derived from the efficient and smart luminaires, lighting-related energy savings have exceeded 100% since the installation was completed in late 2021.

"Energy-efficient LED lighting generates very little heat compared to fluorescent tubes," said Aass electrician Marius Ohrvik Olsen. "This is crucial for us as heat is the enemy of brewers when storing cans of beer. We saw instant electricity savings from our new lighting, on top of which we don't need to use our air conditioning as much."

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



## Smart lighting solution for public walkway



Luminaires installed in front of residential buildings only ramp up to 50%.



BEKA Schröder has supplied a complete smart lighting solution for a public walkway in Stellenbosch

BEKA Schröder has supplied a complete smart lighting solution for a public walkway in Stellenbosch, South Africa. The aim of the project was to uplift an unsafe walkway, enabling the general public to safely use it.

The requirement was for a completely self-sufficient system that can deal with any electricity supply problems, and to remain fully functional for up to 10 hours if there is no power. The lighting solution consists of 3 m and 4 m steel poles with 72 Ah lithium batteries, BEKASTAR LED post top luminaires with DALI dimmable function, IP 66 DALI motion sensors, Schröder ITERRA nodes and 500 W inverter charge controllers. Furthermore,

the poles are fitted with panic buttons and cameras for 24-hour camera surveillance.

The motion sensors keep the luminaires dimmed when the area is not in use, in order not to disturb the surrounding nature. Dimming is set to 10% when no presence is detected, ramping up to 100% when someone approaches. Luminaires installed in front of residential buildings only ramp up to 50%, to limit obtrusive

lighting into private space.

The Schröder ITERRA technology enabled the custom dimming level per pole. The detection area is 6m from the pole. When a person is detected, it always triggers two poles ahead, preventing someone from walking into darkness.

BEKA Schröder develops and manufactures energy-efficient LED

lighting products in South Africa, designed and suitable for local conditions.

The company is proud to be associated with Converge Consulting in providing a successful smart LED lighting solution for this project.

Enquiries: [ct@beka-schreder.co.za](mailto:ct@beka-schreder.co.za). View a video of the installation here: <https://youtu.be/dXW812Lq4HU>

## Fibre optic lighting impresses at LEDucation

At the recent LEDucation exhibition in the USA, it was encouraging to see the advancements in fibre optic lighting.

A company called Universal Fiber Optic Lighting USA (UFO) exemplified this maturing of fibre optic lighting, including the adoption of LED illuminators/light sources, attractive side-emitting fibres, and attractive end fittings, including European crystal. Perhaps what was most impressive was the sheer variety of custom capabilities.

UFO provides components to OEM manufacturers, creates custom architectural lighting systems for lighting designers, and provides custom lighting systems for upscale homes. Its LED illuminators run cooler and quieter than high-powered HID illuminators. Fibre optic lighting can have some advantages in outdoor and wet locations, as the electrical light source is separate/remote from the end fittings.

The systems can be controlled stand-alone or as part of a full DMX control system. Lighting effects can include colour changing, twinkling, and dimming.

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

# BEKA Schröder

Experts in lightability™



## SOLARPOLE

### Integrated LED solar lighting solution

The SOLARPOLE offers an integrated aesthetic option to fully suit your off-grid solar lighting requirements in outdoor residential and public applications. Combined with the ZIYA luminaire, the SOLARPOLE provides a reliable lighting solution for roads applications. The popular KAZELLE post top luminaire completes the offering for urban requirements with a minimalistic and modern look. The cylindrical solar module is revolutionary. The vertical solar panels use a cylindrical module to achieve a better aesthetical design, and excellent performance in wind resistance.



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## Horticultural lighting to fight pests

An area of growing research and practice is using lighting to help control agricultural pests. This can include horticultural lighting in indoor growing facilities (aka controlled environment agriculture or CEA) or night-time treatment with specific wavelengths on outdoor crops.

Greenhouse growers have long known that introducing supplemental grow lights to greenhouses can dramatically change the types and severity of pests. It's possible for indoor growers to consider lighting impacts to increase the effectiveness of fighting pests.

Integrated Pest Management (IPM) is a holistic approach to managing pests that combines multiple methods and strategies, including cultural, physical, biological, and chemical methods. IPM often creates an environment that is less favourable to

pests, such as by reducing their access to food, water, and shelter. IPM advocates for the use of the least-toxic option available and only as a last resort. Often IPM utilizes biological controls, such as the use of natural predators or parasites to control pest populations. These biological controls are often referred to as biologicals, biocontrols, or just bios.

Lighting can impact biocontrols through photoperiod, intensity, and disease control:

**Photoperiod:** Insects under stress often go dormant in a process known as diapause, most typically in winter. Hours of light per day (photoperiod) is one of the strongest triggers of diapause. Supplemental CEA lighting can extend the photoperiod for biocontrols and keep biocontrol species active in fighting pests through the winter. This strategy is "breaking diapause" for

biocontrols.

**Light intensity:** Some biocontrol parasites become more effective with increased light intensity as well as increased photoperiods. This makes these parasitic biocontrols better at controlling pests. Research has also shown that increased light intensity can make blue and yellow sticky traps more effective at trapping specific pests.

Essentially, insects can see the traps better and are more attracted to the colours under more intense lighting.

**Disease control:** Different wavelengths of light have been shown effective at fighting certain plant diseases. Red light suppresses downy mildew in basil and improves plant growth. The red light treatment is done at night to prevent spore spread.

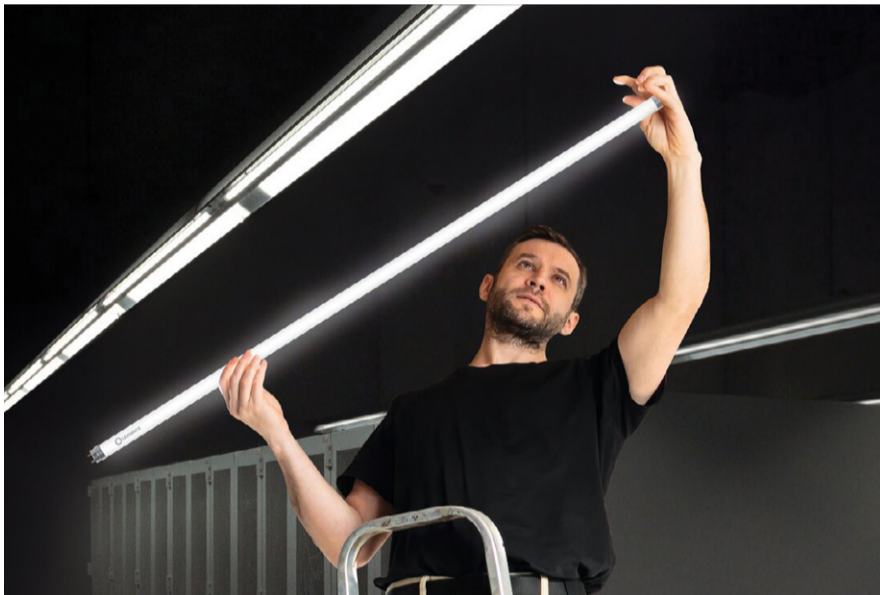
UV light is also being researched to prevent powdery mildew in cucumbers

and strawberries. As with more familiar UV disinfection, UV can break down a pathogen's DNA. Blue light aids in repairing DNA, so combining blue and UV lighting has been shown to be ineffective at preventing the disease. UV applied to strawberries at night was found to be as effective as the best fungicides against powdery mildew.

The LHRC at Mt. Sinai recently published research on UV-C treatments to fight powdery mildew on cucumbers grown outdoors. While the study didn't find significant prevention of the disease, it delayed onset and also found reflective mulch yielded better outcomes than dark mulch, likely by keeping down soil temperatures, aiding plant health.

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

## The LED replacement solution for almost any application



With the new efficient LED Tube External System – consisting of an LED tube and an external DALI-2 driver – LEDVANCE offers an LED upgrade for existing T5 and T8 fluorescent lamps which is both dimmable and suitable for emergency lighting. Thanks to replaceable components, it is also very economical and promotes sustainability keeping the circular economy in mind.

Because the EU RoHS Directive stipulates that traditional fluorescent lamps may no longer be placed on the market throughout the EU during 2023, many existing lighting systems will have to be upgraded from fluorescent to LED technology in the coming months. For most companies this switch is untimely as they are already facing major economic challenges created by Corona, the war in Ukraine, the energy crisis and inflation. In this situation, lighting specialist LEDVANCE is launching an economical, highly compatible and easy-to-install replacement solution: the LED Tube External System.

### Dimmable – replaceable – fit for emergency lighting

The DALI-2-capable LED Tube External System consists of two perfectly matched components: an LED tube and an external driver. Following the principle of "replace components,

keep luminaire housing", even T5 or T8 lamps integrated into a light management system can be upgraded to efficient LED technology quickly, economically and without any compatibility problems. What's more, the LED Tube External System is dimmable and suitable for emergency lighting. So, thanks to its versatility, it meets the requirements of a wide variety of applications.

### Huge savings, quick payback

Thanks to the optimal system efficiency of the LED tube and driver as well as relatively low replacement costs, the switch to LED technology using the LED Tube External System pays off for companies after just a few months – especially when the full potential savings are exploited in combination with sensors in a light management system. Once the return on investment has been achieved, the energy costs are up to 60% lower than those of conventional fluorescent lamps which means a real competitive advantage. The LED Tube External System also makes later maintenance work particularly economical and sustainable as individual components can be replaced by a facility manager, for example, keeping in mind the circular economy.

Products available on request.

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

SHEDDING LIGHT WITH PHILIP HAMMOND

## Which lighting design software should you use?

A quarter of the year has flashed past before any of us could blink and take stock of all that has happened during that time.

For many years, lighting designers have debated which is the best lighting design software for them to achieve the best results. I know of twenty three (23) different software suites that can be used for lighting design, some of which have add-on extra bits of software for tunnels, use within Revit and more.

Some software is made available free of charge, whilst other software is licensed and paid either monthly or annually in advance. With that said, how does a lighting designer, consulting engineer, architect or other professional know where to start and ultimately be able to decide which software will be best?

A good starting point is to determine one's personal needs and preferences. One would then be able to select the software that will meet those needs and preferences. In South Africa, there are essentially three (3) lighting design software suites available. They are:

- Agi32 which was one of the first lighting design software suites available. It can be acquired for a monthly single user licence fee of \$110 per month which when converted to SA Rand at the time of writing works out to be R2,050 per month or R18,325 annually in advance.
- Relux Desktop 2023 is rapidly becoming the most popular and best lighting design software in the world. It is extremely well supported from Switzerland and by BHA School of Lighting. The software is free to download. It is offered free of charge because the lighting product manufacturers pay for their products to be included for users to select to use in their lighting designs. If users need to add individual luminaires that are not included in the online Relux software luminaire selections (there are about 1000 manufacturers who subscribe to have their products listed for use in the software), they will need to purchase a Relux 3RD Party add on licence which must be renewed annually. Other paid add-ons that are available include Relux Tunnel, Relux KCalc to calculate obtrusive light, Relux Energy CH, Relux for AutoCAD and Relux for Revit.

- Dialux Evo is also excellent lighting design software. Whilst Dialux Evo 11 has many features that are similar to Relux Desktop, there are a number of features that are not available in Dialux Evo 11. But having said that, both software suites, Dialux Evo 1 and Relux Desktop 2023 are constantly being updated and enhanced.

If any of the readers would like to know more about the two leading lighting design software suites, they are most welcome to register for a webinar that I will present on 20 April 2023 at 18:00. To register simply go to <https://bhaschooloflighting.clickmeeting.com/episode-4-23-dialux-evo-versus-relux-desktop-a-factual-comparison-by-experts-and-me/register>

Choosing the lighting design software to meet your needs is essential. There are so many lighting design functions and applications which make it more difficult to make a choice.

At BHA Lighting and BHA School of Lighting we recommend Relux Desktop 2023. We have used all three of the software suites detailed above, but we finally settled on Relux Desktop.

I am frequently asked to help lighting designers and consulting engineers to choose lighting design software. It is a very onerous task to help them make that choice. Fortunately, I have never received any complaints from any of those I have assisted.

We recently launched our own proprietary Relux Desktop Lighting Design Software Course. The course has been extremely well received. Students are taken from beginner level through to the level of being an accomplished Relux Desktop user working through four exercise sets, three for interior lighting designs and one for exterior lighting designs, including street lighting, flood lighting, high mast lighting and visualisations, and a final very complex challenge to lift the student to the highest possible level of proficiency.

I hope that this short article has stimulated you to learn more about the different software suites before making your final choice. I am always available to answer any questions that you, the readers, may have.

Continue to have a great and successful 2023.

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



## 2023 Lighting trends

We are well into 2023 now and the lighting trends gaining traction are at the forefront of our offerings this year. From residential to commercial settings, lighting plays an integral role and can influence the mood of the room and enhance its functionality. These are the trends you may want to incorporate into your space to keep it looking fresh.

### Sustainable lighting

The sustainability trend in interior design continues to follow an upward trajectory, and lighting is no exception. Consumers are making it a priority to turn to energy-efficient and eco-friendly lighting options that reduce their footprint on our planet. LEDs, solar fixtures and smart lighting are the go-to choices for environmentally-conscious homeowners, interior designers and project managers who want lighting setups that are sustainable.

### Industrial lighting

Characterised by its raw, rugged, and utilitarian aesthetic, the industrial lighting trend is ideal for modern and minimalist interiors. Inspired by the lighting used in factories and industrial settings, this style of lighting features metals like iron, steel and copper, exposed bulbs and often has a raw, unfinished look. Although this style of lighting first gained prominence over a decade ago, it's a trend that continues to be revisited and reimagined. This year we're seeing metals mixed with materials such as wood and glass for an updated look.

### Sculptural lighting

Sculptural lighting is big this year. Think unusual shapes, materials and colours. From delicate glass chandeliers to bold, oversized pendants, sculptural

lighting can serve as a statement piece in any room. This lighting trend is sure to inject some drama into a space and doubles as eye-catching artwork. Suspend a sculptural pendant over your dining room table or kitchen island to elevate the look and feel.

### Natural materials

This next trend falls in line with the sustainability trend and hints at our desire to be closer to nature even when in our homes. Lighting made from natural materials such as wood, rattan, bamboo, stone and glass add warmth and texture to a space and pairs well with plants, floral arrangements and textiles. Rattan weave, for example, is often used in bohemian or natural décor styles, where it is appreciated for its rustic beauty. The flowing lines bring a sense of serenity into a space and help people to unwind and destress.

### Vintage lighting

From mid-century modern to Art Deco, the vintage lighting trend is popular this year. Lookout for distinctive designs, such as sputnik chandeliers or globe-shaped pendants to add a touch of nostalgia and glamour to your space. Exposed Edison-style LED bulbs and metal pendants are also a nod to years gone by and make a subtle statement in a room.

### Integrated mirror lighting

Bathroom mirrors with integrated LED lighting are growing in popularity, especially among homeowners who have compact bathrooms or simply prefer a more streamlined look. The built-in LED lights are connected to a power source and can be activated with the switch of a button.

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



## MATelec upgrades its day-night switch game

MATelec has always been synonymous with day-night switches and has been supplying them into the market for decades. However, it has been a while since some design work was done and the company decided that it was time for a bit of an upgrade.

MATelec embarked on a redesign of both the board and the housing with the following design targets:

- Must be price competitive with current imported units.
- Must be manufactured in South Africa.
- Must be easy to install for the contractor.
- Must remain reliable through loadshedding on-and-offs.

The units are manufactured 100% in KwaZulu-Natal. The company has a state-of-the-art electronics manufacturer which populates all the boards, tests, conducts full assembly and another functionality test before packaging. All housing is manufactured in the Matelec factory. The packaging is printed in Pietermaritzburg and MATelec has kept the packaging as simple as possible for both cost and recyclability.

The units have been load tested at SABS and are 100% compliant with SANS 1777. Although day-night switches are not mandated by law to be tested to the IEC SANS Specification, MATelec is proud to report that the company backs theirs 100%. For this reason, the company offers a three-year warranty from date of installation.

### Why is this unit so easy to install?

MATelec has had a custom-designed terminal manufactured to ensure that the company has the largest cable entry terminals that could fit onto the PCB, thus ensuring that MATelec manufactures the least fiddly day-night switch. On top

of this, the product has a quick-click base. Once the wires are in the terminal, just click the base onto the tray and that is it – no tiny little screws to keep the dome lid in place.

### About MATelec

MATelec's manufacturing facility is situated in Pietermaritzburg, South Africa, from where its products are distributed around the globe. To market its product range internationally, MATelec has had to ensure that all products meet the safety specification requirements of the International Electrical Commission.

MATelec and its staff strive to be innovative and flexible in the manufacturing process, as well as in the provision of services to its valued customer base. Its aim is to set new benchmarks and standards, the results of which make it easier for its customers to do business with with the company.

MATelec is committed to the social and financial development of the community in which it operates, by providing entrepreneurial opportunities along with training and management support. Besides its own manufacturing facility, MATelec represents other manufacturers of quality electrical products, in the marketing and distribution of its commodities both nationally and internationally.

The company's mission is to provide quality electrical products; along with a benchmark customer service at a competitive valued price through its production, assembly, import resources as well as its competent professional team that meets consumer expectations and reacts quickly and effectively to market trends.

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



# Luna

15A Day-Night Switch  
~The Grey One~



**Easy for the installer:**

- **Large wire termination**  

- **Quick-Click Base**  
No tiny little dome-lid screws
- **20mm Cable gland cable entry OR direct to conduit with 25mm coupler**



**SABS TESTED**  
**SANS 1777**



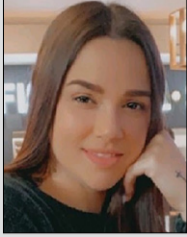





**3**  
YEAR WARRANTY



**RSA** Designed and Manufactured





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**BRIGHT SPARK**

**THE CARROT, THE SCARF, AND PIECES OF COAL**

A carrot, a scarf, and five pieces of coal are found lying on the lawn. Nobody put them on the lawn, but there is a simple, logical reason why they are there. What is it?

**MARCH SOLUTION**

The man stood on a block of ice and hung when it melted.

**MAY 2023 FEATURES**

- DBs, switches, sockets and protection
- Energy efficiency
- Lighting

**JUNE 2023 FEATURES**

- Tools of the trade
- Energy measurement and supply
- Lighting

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**Publisher:**  
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**Deputy publisher:**  
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**Published monthly by:**  
 Crown Publications (Pty) Ltd  
 P O Box 140  
 Bedfordview, 2008  
 Tel: (011) 622-4770  
 Fax: (011) 615-6108

**e-mail:** sparks@crown.co.za  
**Website:** www.crown.co.za

**Printed by:** Tandym Print

The views expressed in this publication are not necessarily those of the editor or the publisher.

This publication is distributed to electrical contractors, wholesalers, distributors, OEMs, panel builders, Eskom, mining electricians and consulting engineers (electrical) as well as libraries, members of IESSA and public utilities.

**abc** Total 14 176 per month.