

FALSE CLAIMS ON SOLAR STREET LIGHTS ARE HAVING A DETRIMENTAL IMPACT ON THE INDUSTRY



CONTINUED ON PAGE 11

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With abundant sunshine, load shedding issues and rural areas that are not connected to the grid, South Africa is the perfect melting pot for a thriving solar street light industry. However, as is often the case when such opportunities arise, nefarious activities are never far behind.

Otto Horlacher, managing director of Giantlight, a manufacturer, supplier and installer of LED lighting, has noticed a worrying trend and invited *Sparks Electrical News* to visit the company to investigate. "You buy a solar street light, and it says it is 800 W. Generally, it is a nice looking, well-engineered fitting, but I have approached the manufacturers and asked what the 800 W means and have been met with silence. These are false claims," he says.

One answer he received was that it was a reference to old incandescent lighting, yet when doing the maths, it doesn't track. "The issue is that it is all fine and well if you understand what you are looking at, but for a rookie town planner, he or she could get strung along by the numbers presented on a product. They want to light up a public area and can go buy an 800 W solar light from the China Mall and we're only offering a 30 W, which is more expensive," says Horlacher.

He explained that a 400 W solar panel is the size of a door, so a solar street light cannot conceivably operate off an 800 W panel. "The batteries are 3.2 volts by 32 amp hour, so the total wattage coming out of the battery is 102,4 W – nowhere near 800 W, so it doesn't matter how you present it, this is a 15 W post top being sold as 800 W."

On data sheets, which we looked at, again, the calculations did not add up. So why is this happening? Is it a lack of knowledge on the manufacturer's side or are they trying to pull the wool over people's eyes by making these false claims? "They just do it because other people are doing it," says Horlacher. "These manufacturers also print IP65 on everything; whether it's IP65 or not, it's printed big and it's the first thing you see. We're in a situation where tenders are going out for 200 or 300 of these fittings, and the client has no idea what they are buying. This isn't to say that they don't work, but the manufacturers are not being honest, possibly deliberately ambiguous. There is no way I can come back to any of the wattage claims, even if I total everything electrical in the product and add it up."

Daniel Kasper, General Manager of BEKA Schröder, Africa's leading manufacturer of LED luminaires and Glass Fibre Reinforced polyester (GRP) Poles, is confident that solar solutions will in future provide lighting for many applications at reasonable costs due to technical improvements in view of storage, load and solar module technologies. It is the technical

complexity and the lack of standards, in addition to the large price difference between a solar powered light and a grid powered light, which drives the poor performance solutions on the market. "We need to educate the end user and work together as industry to set up standards to ensure that the correct technical information is provided," Kasper says.

"While BEKA Schröder offers three very different purpose designed solar options, including a highmast solution, our focus is to train our commercial team continuously and provide training and guidance on a very fast developing solution for customers," he continues. "Batteries constitute the major contributing cost to solutions, and we find many presented solutions offered in the market are based on small battery sizes – that are very questionable in terms of calculating the system operation – to make the system seem

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South Africa's first e-commerce platform for the cable industry

Aberdare Cables is the largest cable manufacturer in Southern Africa, specialising in electrical cables for application in power transmission, distribution and generation. The product offering extends across multiple market sectors such as energy, building and construction, mining, renewable energy, transport, large indus-

try, OEM, retail, agriculture and engineering services.

Now the company has launched a new e-commerce platform to enable the online sale of its products. "The world is moving towards an online era, and, as Aberdare, we want to be a part of that future," explained Pretty Matjie,

Aberdare marketing manager, at the launch event held at the company's Meadowdale office.

Aberdare marketing, sales and distribution executive director Mishack Matla, noted: "We are a 77-year-old manufacturing business, and it is important that we continue to adapt. With South Africa's first ecommerce platform in the cable industry, we are enabling customers to engage with us in a more efficient manner."

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Aberdare Cables recently held a launch for its e-commerce website.



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Aberdare staff, Raven Mahabeer, general manager; CEO, Andy Wang; Pretty Matjie, marketing manager; Mishack Matla, marketing, sales and distribution executive director and Samuel Perumal, key accounts manager.

customers the ability to view prices, view and download invoices and statements, check stockholding and track deliveries. As the platform is coupled with the Aberdare backend system, each customer sees their own specific pricing, invoices and discounts, along with real-time status of their orders.

CEO Andy Wang said at the event that Aberdare has always been committed to providing the best products and the best service, and the new e-commerce platform is testament to that vision. "Our goal is to provide an incredibly convenient B2B platform to the cable industry. We cannot wait to trade with you on our platform in the near future."

The event was also used as a platform to announce a new product offering from Aberdare. "Given the electrical crisis the country is facing, we want to be a part of the solution, thus we are adding battery energy storage to our portfolio," said Matla. Two prototype 5 kW inverters and a 20 kWh lithium-ion battery system are on display at the company's offices, with the solution to be made available to customers once the shipments have arrived in South Africa.

Aberdare's three manufacturing sites and eight customer service centres in South Africa enable the business to provide personalised service to its entire customer base. With 70 years' experience, Aberdare's focus remains on its people, customers, innovation and embodying high standards of quality and safety. The company offers cable design, product development, as well as installation support, commissioning and diagnostic testing through its Engineering Services business. In addition, comprehensive value added services such as Key Account Management, Customer Relationship Management, product and application training, laboratory testing and a Technical Help desk are offered. Aberdare Cables is a level 2 BBBEE contributor which places it in an advantageous position to secure business in the industry.

Enquiries: www.aberdare.co.za

How to build the best electrician website

Alongside your other power tools, a website will be your strongest asset when it comes to growing your electrical business. It's where customers go to find out more about you and your services, and most importantly, it's probably how they'll contact you.

Showcase your best work

Even though a newly-minted switchboard is a beautiful thing, prospective customers visiting your website want to see who you are and the type of services you provide. Great photography will make a big impact and is the best way to showcase your work and put a face to the name.

Purchase your domain name

A domain name is your website's official address on the internet. In other words, it's what your customers will type into the search bar when they need to find you.

If your business name is 'Voltage Masters', ideally you want your domain name to match. For example, 'www.voltagemasters.com'.

If your first choice has been taken, try adding an abbreviation like your location. For example, voltagemastersjhb.com or voltagemasters.co.za.

Once you've purchased a domain name, you'll own the domain for a certain period (you'll probably need to renew it annually) and you'll need to register it with a domain hosting service. If you don't have a custom domain, we can host your Instant Website on our subdomain for free.

Create a sparky logo

Your website will need a unique logo so customers can recognise your business online and offline. If you don't already have one, you can either:

- Ask a local designer to whip one up
- Buy a customised logo online and get it emailed to you instantly with Canva.

Craft high-voltage copy

You want your copy to be short, sharp and electric. It

needs to resonate with your target audience and tell them what they need to know – quickly. Start by listing what you do (your services), your most frequently asked questions and why you started your electrical business. Then condense it as much as possible into short, easy-to-read sentences.

Aim to be top of Google's list

When people search online for electricians in their area, the most established businesses will usually pop up first. You can jump up this list by optimising your website for search engines.

An easy way to do this is by adding links to the following:

- Good customer reviews/testimonials
- Social media and Facebook pages
- People you work with such as partners or suppliers

Reap the benefits of Google Business

As well as optimising your website to rank higher on the search list, you also want to register your business with Google Business. It's an easy way to share information about your business to prospective customers, like location and opening hours, and it helps them compare your Google ratings with your competitors.

Look great on every device

Ever tried looking up a website on your phone and the font's too small or the formatting is all over the place? With more and more people using their phones rather than computers, it's really important to make your website look great on any device.

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Rise of the Machines: Human skills and automation combo key for boosting manufacturing

Dr Andrew Dickson, engineering executive at CBI-electric: low voltage, says that with the rise of tech such as AI, automation, and machine learning, companies will be able to improve their production processes and enhance their product quality.

He points out that when it comes to manufacturing, there are two different approaches, each with its own set of complexities and challenges. "The first focuses on high volume manufacturing, where component count or throughput is important. In this environment, it is important to be able to repeatably produce components to a high degree of accuracy. This produces products that are consistent in appearance and performance and allows for scale of economy. The second centres around manufacturing large, complex components that may take days to produce but have a high value when sold.

"While the majority of manufacturing companies in South Africa focus on producing high-volume products where consistency is crucial to avoid poor quality outputs and reduce waste or scrap, there are human limitations when it comes to maintaining this consistency. Workers can get tired, lose concentration, or introduce human error which may result in substandard components being produced or accepted," explains Dr Dickson. "Automating processes or checks can ensure consistent quality and minimise these errors."

However, he highlights that automation can also produce many thousands of bad components quickly if not correctly monitored. "But with the help of AI, fast visual screening and machine learning, tighter tolerances can be maintained, and drifts can be detected earlier and corrected quickly, leading to better components and ultimately more consistent products. This will decrease scrap rates and improve product quality."

Many new job opportunities on the horizon

"It is important to note that the adoption of tech will

create new job opportunities, as it can enable companies to develop new products and services, improve efficiency and productivity, and ultimately grow their businesses," he explains. "The impact of automation on jobs in the industry will depend on the specific context and application of the technology. In some cases, it can be used to augment human workers, providing them with tools and insights to help them work more efficiently and effectively."

How humans and robots can work together

In order to successfully adopt automation in the manufacturing industry, Dr Dickson outlines that it will require a comprehensive strategy that addresses both the benefits and challenges of the technology as well as supporting workers in acquiring the skills and knowledge they need to succeed in a changing work environment. "This can be achieved by developing training programmes that equip workers with the competencies they need to work with new technologies such as AI systems and automation tools," he says.

Humans are irreplaceable

"It is clear that while automation and robotics technology continue to advance and transform the manufacturing industry, it is unlikely that machines will completely replace human workers," notes Dr Dickson. "There are certain tasks that still require human intervention and oversight, and machines cannot replace the experience and expertise that comes from years of working in a particular job."

"We, therefore, can't deny the need for businesses to embrace these changes and to start preparing now, so that they can harness the opportunities that the Fourth Industrial Revolution presents to the manufacturing industry in South Africa," he adds.

Enquiries: www.cbi-lowvoltage.co.za



Artisans to benefit from Swan Electric and MCD Training Centre partnership

In collaboration with a partnership between UXI Artisan Development Group and Swan Electrical. MCD Training Centre recently accepted a donation from Swan Electric. The company sponsored control switchgear and accessories and will also provide MCD Training Centre with new training boards to enhance the electrical facility, and to assist with Solar training and solar accessories.

MCD Training Centre was founded in 2001 following the implementation of a privatisation programme in the Samancor group, which is part of the Billiton group of companies. MCD Training Centre is based in Meyerton and has a satellite branch in Rustenburg.

"Our company is in a position where we really want to make a difference in South Africa," said Swan Electric General Manager

Steve Schwartz at the handover. "Although this is a well-trodden statement that people make about their companies, we really do feel that we have something with which we can make a difference. This partnership with MCD is just the beginning; we want to walk a road of collaboration and believe that we have something to bring to the educational forums."

Elsie Harmse, Group Chief Executive Officer of MCD Training said that the company's passion is the development of South Africa's youth and that the donation from Swan Electric will give the company a better working environment. "The UXI Group is a national private college platform which trains artisans; within the group we train more or less 3 000 artisans a year," she explained. "However, we want to train them on the quality that the

industry expects, and that is why it is so important that we have partnerships such as this."

Swan Electric is as a supplier of low voltage electrical equipment to the Southern African and other markets. Swan and its subsidiary Switch Technique, as well as Mantech Electronics, are wholly owned subsidiaries of Mobicon, a company listed on the Hong Kong stock exchange.

The alliance between Swan, Mantech and Switch Technique provides enormous synergistic benefits, including the ability to offer customers an extremely wide product range. Swan Electric has worked very closely with many SMME's to build electrical products for Government institutions and project developments.

Enquiries: www.swan-electric.co.za and www.mcdtraining.co.za



Neville Ince, MCD Training Group Operations Manager; Marentia Carruthers, MCD Training HOD Sales and Marketing; Steve Cook, Swan Electric National Sales Manager; Gerhard Nagel, MCD Training Campus Manager; Clive Fletcher, Swan Electric Technical Training Officer; Elsie Harmse, MCD Training Group Chief Executive Officer; and Steve Schwartz, Swan Electric General Manager.



Lightning series 2: Lightning Protection Design

Richard Evert, National Director of the Earthing and Lightning Protection Association (ELPA) has provided *Sparks Electrical News* with a comprehensive series on lightning. The series will cover Risk Management; Lightning Protection Design; Lightning Protection System (LPS) Installations; Surge Protection Measures; Earthing and Resistance; and more. Be sure to catch all the articles over the next six months.

Lightning protection must address not only the behaviour of lightning but also the consequential over-voltages created by that lightning behaviour.

Lightning behaviour

The primary principle behind lightning protection design is to divert lightning away from the asset and property that is of interest to the vested property stakeholder.

Therefore, the lightning protection designer will identify the following key factors to the design:

- Qualities of the lightning as the source of that risk.
- The use of the property, to qualify the extent of the potential losses.
- The desired or considered tolerance level that the vested property stakeholder can withstand.

The designer is responsible for:

- Consulting with all parties.
- Understanding the tolerances of installed electrical and electronic equipment.
- Understanding the electrical wiring within the structures, into and out of the structures.
- Understanding the civil works and construction of the structure including the steelwork reinforcing in columns, foundations and platforms.
- Appropriate earth electrode schemes in accordance with the prevailing soil resistivity

conditions.

- Assigning the correct lightning protection level (LPL) risk in the best interests of the vested property stakeholder.
- Submitting suitable mitigation recommendations of LPS and SPM as applicable, to the vested property stakeholder for adoption.

Lightning current

The most dangerous point during a lightning discharge to ground, is the point of contact to ground. At this point, the full electrical charge being transferred from cloud to ground, will pass through this point into the earth.

The designer will utilise all data to determine the probability that lightning will terminate on the structure of interest. The higher the probability, the more likely the designer will recommend a Lightning Protection System (LPS).

The designer is responsible for ensuring that the bulk of lightning at or near the structure will terminate on the LPS and not on some portion of the structure.

The designer is responsible for ensuring that the path created by the LPS is adequately separated from all other conductive surfaces such that lightning current will be concentrated in and limited to the primary electrical path offered by the LPS.

The designer is responsible for ensuring that the lightning current will be entirely absorbed into the ground at the designated earth electrodes designed for this purpose. Useful information on the process for an LPS is carefully laid out in SANS 62305-3.

Subsequent over-voltage

Lightning current, whether concentrated through an LPS or in an uncontrolled discharge at one of many possible termination points, will

cause a 'ground potential rise'.

- Any electrical current,
- flowing through a path of resistance and/or impedance,
- produces a voltage.

The designer is responsible for controlling the ground potential rise at the base of the LPS, if an LPS is installed or forms part of the designer's recommendations. Appropriate equipotential bonding and surge protection will form part of the LPS design. Where the designer deems that an LPS is not required, the existing structure will have adequate means by which lightning current will not pose a risk to the assets of the vested property stakeholder.

Indirect lightning events can produce a voltage rise at the structure of interest. The designer is therefore responsible for controlling all possible sources of voltage rise due to lightning both at the structure and in the vicinity of the structure.

It is for this reason that the designer takes responsibility for controlling over-voltages on all electrical and electronic wiring into and out of the structure. The designer will utilise all data to determine the probability that dangerous voltages may appear at the structure of interest.

The higher the probability, the more likely the designer will recommend appropriate Surge Protection Measures (SPM) over and above the surge protection included in the LPS design.

In the next issue, we will explore Lightning Protection System installations.

Enquiries: www.elpasa.org.za

Scan the QR code to read the first article in the series: Risk management

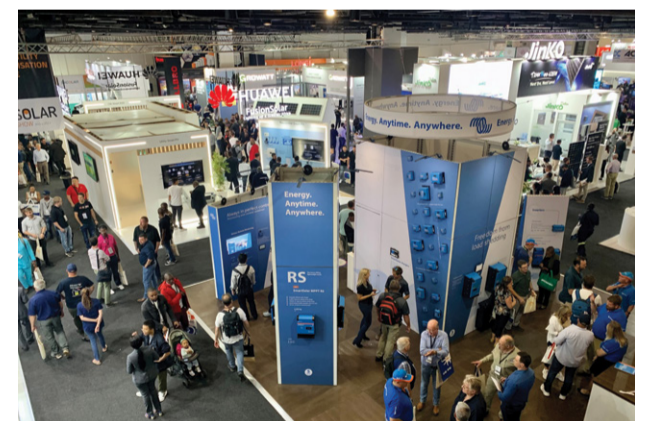


Another successful Solar Show Africa expo

For 26 years, *The Solar Show Africa* has been the meeting place for the brightest and most innovative minds from IPPs, utilities, property developers, government, large energy users, innovative solution providers and more, from across Africa and the globe. The Solar & Future Energy Show Africa 2023 was no exception.

Over two days, the event at the Sandton Convention Centre welcomed over 13 000 global attendees, hundreds of inspiring speakers and hundreds of innovative brands showcasing the latest tech at this record-breaking edition. The expo floor was full of hundreds of alternative energy solutions and there were hours of free content to enjoy where visitors could hear from expert speakers as they discussed everything energy related.

Enquiries: www.terrapinn.com



Over 13 000 people attended The Solar Show Africa over two days.



Clockwise from top left: Green Solar Academy; Enertec Batteries; Crown Micro; and WiSolar.



Zest WEG's expanded Middelburg branch improves services and delivery for customers

With its continual growth in sales over recent years, Zest WEG has expanded the capacity of its Middelburg branch in Mpumalanga province with increased facilities and an increased staff complement.

"This expansion is allowing us to keep up with market growth and ensure on-time delivery to our growing customer base," says branch manager Fritz Hoogenboezem. "An exciting addition for customers will be our fit-for-purpose training centre, where we can conduct accredited training on various lines of our equipment."

The branch serves a large geographical area from Ogies in the south to Musina in the north, and from Emalahleni in the west to Komatipoort in the east. The expansion has seen the building of a new block with more space for product inventory, administration and technical support. A dedicated work area

was upgraded for testing and repairing variable speed drives, soft starters and controls.

Hoogenboezem notes that the branch is servicing a range of sectors that continues to widen. Its mining industry customers include mines in the platinum group metals, chrome, coal, gold, magnetite, phosphate and copper segments.

"We are also kept busy in the paper industry and sugar milling, while steadily doing more work in agriculture and with timber mills," he says. This business growth has been sustained despite the poor performance of the economy, he points out, showing that the company is making a real difference to customers.

"An important aspect of our work has been to highlight the importance of energy efficiency in the context of rising energy costs," he explains. "This is becoming as relevant to

agriculture as it has always been to energy-intensive industries like mining. The branch has the largest stock of IE3 and IE4 WEG Super Premium Efficiency motors to service the Mpumalanga and Limpopo region."

While in certain industries it is still common to base purchasing decisions mainly on upfront capital costs, he says that customers are becoming more aware of their total cost of ownership of electrical equipment. He points out that an electric motor, for instance, can consume the value of its purchase price in electricity in just five weeks – when running 24/7.

"There is growing recognition of the potential savings possible from buying the best, most efficient motor – and paying less for electricity for the lifetime of the motor," he says. With most agricultural enterprises paying the ever-increasing Eskom rates for their electricity, there is now more interest than ever before in cutting energy costs than ever before.

He says the branch expansion aligns with WEG continually



The expansion of Zest WEG's Middelburg branch in Mpumalanga province is another sign of the company's growth in the region.



Zest WEG Middleburg's newly expanded building with bigger warehouse and storage space.

investing in resources – including research and development, human resources, training, production facilities, new products and equipment.

"As a sales branch, it is our purpose to bring these state-of-the-art resources to the doorstep of customers including end-users,

consultants and other original equipment manufacturers," he says. "The improvements and expansion of our Middelburg facilities is a major step forward in ensuring that we achieve this goal."

Enquiries: www.zestweg.com



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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 Eldon.

Pratley pushes the boundaries in 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 Eldon.

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 Eldon.

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, Pratley will launch new products this year ideally suited for the ever-changing mining sector, at least one of which will be a world-first and game changer for electrical termination products," concludes Eldon.

Enquiries: sales@pratley.co.za

Zest WEG builds special transformers locally for solar farm

A solar power generating facility recently developed by a South African gold mine has made use of Zest WEG's locally manufactured transformers to serve this specialised application.

Factors like harmonics or 'noise' in the current flow mean that solar photovoltaic (PV) applications require specialised transformers, explains Rynard Potgieter, Sales Manager for transformers at Zest WEG. At this site, where 40 MW of renewable energy is being generated, the company supplied 10 of its custom-designed transformers of 5 MVA capacity each. The units for this PV project were manufactured at the company's Wadeville factory.

"In this application, our transformers will step up from 690 V current to 11 kV," says Potgieter. "A dual input, single output configuration is a cost-effective innovation, allowing one transformer to be fed by a number of string inverters through the dual input."

He noted a further innovation of the recent PV project was the use of ester oil – rather than normal oil from hydrocarbons – as a coolant in the transformers. With ester oil being a focus of dedicated research at the WEG



Rynard Potgieter, Sales Manager for transformers at Zest WEG.

Group's head office in Brazil, Potgieter said this option brought considerable benefits to the South African solar plant.

"From an environmental point of view, ester oil does not carry the risk of contaminating land or water if it happens to leak from the transformer," he says. "Operationally speaking, it is also able to withstand higher



The transformer radiator configuration designed for optimal efficiency and style.



The MV and LV terminal boxes of the 5 MVA PV transformers.

temperatures without degrading."

It has the advantage of not being flammable, so it would not contribute to an explosion or fire. Ester oil also retains heat better, moderating the temperature of the transformer windings while not activated.

Enquiries: www.zestweg.com

Local company ArmCoil and Schneider Electric partner to deliver skid substations to mining group

ArmCoil Afrika, a local manufacturer of medium voltage (MV) AC motors and transformers, and Schneider Electric have partnered on the provision of a skid mobile substation product line that will provide continuous power to a large mining conglomerate's operations across South Africa.

Together the companies have already completed two skid substations (SKID 961 and SKID 979) and the third and fourth units are in the manufacturing process. A skid is a prefabricated substation, assembled on a self-supporting transformer skid, creating an easily transportable design that can be quickly energised.

ArmCoil is the main manufacturing contractor, providing the MV solutions as well super structure enclosures for the skid substations while Schneider Electric is the preferred low voltage (LV) and MV switchgear partner that includes the company's PremSet Solid Shielded Insulated System (SSIS) switchgear series.

"This is an exciting project for ArmCoil; as a small, family-owned business it is fantastic to not only be contracted to a global mining leader but also partner with a renowned multinational such as Schneider Electric to manufacture the skid substation product line," says Frank Flint, Commercial Manager at ArmCoil.

"Together Schneider Electric and ArmCoil have combined its strengths to produce skid substations based on industry best practices, from design to installation. It is a win-win scenario for not only for the mine but also our partnership," adds Cecil Maartens, FS Segment BD & Channel Sales Manager.

Skid operations

Looking at the practical application of the substations, it's transported by trucks to the various mining pits where mining equipment can then be plugged into the skid. Generally, the substations are used to power drilling rigs and electrical excavators which is then used to fill the trucks with rocks, rubble and ore and transported for processing.

The skid substations manufacturing processes also fall in line with ISO standards which dictate that equipment should be continuously improved to enhance operations and operational safety.

"The skid substations are now in its third evolution, and which each new unit we enhance its operations based on the

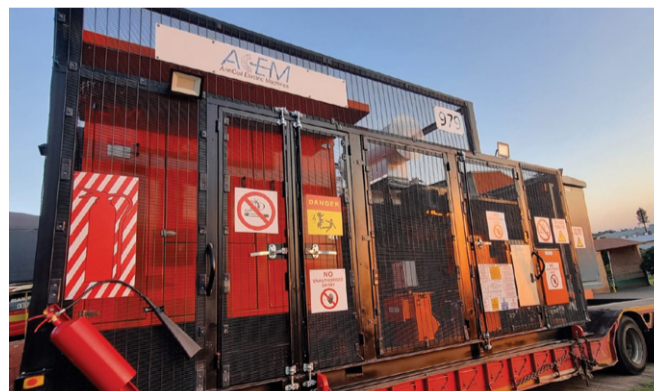
feedback we receive from the mine and our own learnings. It is a dynamic and collaborative process," explains Flint.

"Our combined strengths allow us to build an improved skid. It is an exciting partnership that sees engineers from both teams coming together to build units that readily meet the mine's mobile substation needs," explains Maartens.

The skid 979 substation featured the following enhancements:

- Super enclosure is now made with clear view materials that improves visibility into the units.
- A roof which improves robustness in inhospitable environments near the mining pits.
- Newest iteration of Schneider Electric's auto recloser.
- The skid substation project is estimated to last another three years with two-to-three units earmarked per year.

Enquiries: www.se.com



Digital vs mechanical timers

When it comes to illuminating homes and offices, two of the most important factors for South Africans are security and reducing costs. A timer can address both of these considerations.

It's happened to most of us – you forget to turn the patio or garage light off in the morning and only realise once you get to work (or worse – when you're boarding a plane for a holiday). Allowing this light to burn all day while you are away is a fast way of racking up a high electricity bill. Or perhaps you're working late or going away for a long weekend, resulting in a house shrouded in darkness for many hours, an obvious sign that nobody is home and an easy target for burglars. By setting your lights to a timer, you have a solution to both of these less-than-ideal scenarios.

Radiant offers a choice of digital and mechanical timers to make reducing electricity costs and keeping your home safely illuminated easy and convenient. Out of the four timers in its range, two need to be installed by an electrician on the DB board, while the other two can simply be plugged into a regular plug point.

Digital timers

Pros:

- They're more accurate and precise than mechanical timers.
- They have the ability to programme multiple on/off times, whereas mechanical timers typically only have one on/off time.
- They have a larger display, making them easier to read.
- They're often more durable than mechanical timers.
- They offer more features such as countdown, countdown clock, 12 or 24-hour clock etc.
- They have battery backups to keep them stable across load shedding.

Cons:

- They're often more expensive than mechanical timers.
- They may require batteries, which will need to be replaced. Mechanical timers do not require a power source.
- They may be more complex to operate in comparison to mechanical timers.'

Mechanical Timers

Pros:

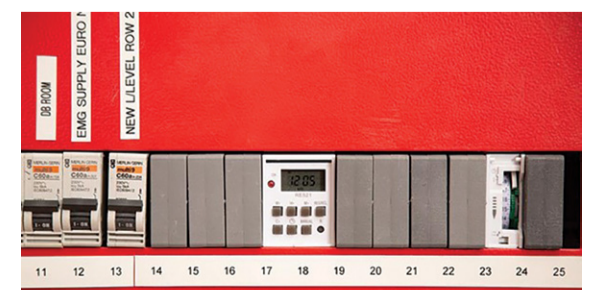
- They're less expensive than digital timers.
- They don't require a power source.
- They're typically simple to operate and have fewer features to get accustomed to.

Cons:

- They can be less accurate and precise than digital timers.
- They typically only have one on/off time.
- They can be less durable than digital timers.
- They may not be as easy to read as digital timers.

Keep in mind that while timers are most commonly used for lights, they're also useful for geysers, pool pumps and other appliances – a handy function to have, especially during the holidays when you may be away from home for an extended period of time.

Enquiries: www.radiant.co.za





Loadshedding places increased pressure on transformers at substations

Constant loadshedding has highlighted the vulnerability of critical electrical infrastructure such as transformers at substations. This means local authorities must implement specific measures to manage the fire risk, highlights ASP Fire CEO, Michael van Niekerk.

The fact that substations, by their nature, do not have personnel means there is no one to raise an alert in the event of any incident. In addition, a lack of maintenance also means an increased likelihood of such incidents.

"The situation is exacerbated by loadshedding, which results in current inrushes when the power is restored. This can damage components such as ageing electrical insulation, and increase the potential of transformer fires," says van Niekerk.

Some substations are in remote areas or in locations difficult to access after normal business hours. This means that installing a standalone fire-detection system is recommended to protect high-risk items such as transformers, which are used to step down the electricity from 33 000 V to 11 000 V or 6 000 V. In addition, a fire-suppression system using foam mist can be highly effective.

"The dangerous combination of loadshedding and a lack of preventative maintenance can result in arc flashes," warns van Niekerk. These are basically mini lightning bolts that can cause the insulation in substations to start burning. A lack of adequate maintenance of the cooling oil in a transformer can cause hot-spot temperatures that result in bubbles in the oil which, combined with high temperatures, increase internal tank pressure and may result in overflow or tank rupture.

ASP Fire can supply and install fire-suppression systems that are standalone, meaning they do not have to rely on pumps and water-storage tanks in the event of a fire. Water is, instead, stored in nearby pressure vessels, which has the added benefit of minimising the quantity of water needed to suppress a fire.

The major problem remains the lack of adequate maintenance. "We are all aware of the challenges faced by local government in maintaining essential infrastructure. Ageing substations that are not well-maintained to begin with are increasingly vulnerable to load shedding, which is a recipe for disaster," comments van Niekerk.

While a simple solution is to install adequate fire detection and suppression systems, this is hampered by the lack of necessary funding. Therefore, carrying out preventative maintenance will ensure that substations are robust enough to cope with load shedding, and also allow local authorities to save on capex costs.

While local authorities have to adhere to strict regulations in terms of electrical safety, the installation of fire detection and suppression systems is not mandatory. An exception is the mining industry, which operates its own substations. Here electricity is essential to ensure life-critical equipment such as ventilation shafts and personnel lifts are operational at all times.

"At the end of the day, the knock-on effect on the entire South African economy is huge," stresses van Niekerk. The cost in replacing a single transformer is prohibitive, meaning local authorities must have a maintenance schedule in place, or have conducted some kind of fire-risk assessment, even if they are not in the financial position to install proper fire detection and suppression systems, he concludes.



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HellermannTyton

Welcome to the world of perfect cable management solutions

Company profile

HellermannTyton is a leading manufacturer and supplier of products for fastening, fixing, installing, connecting, insulating, protecting and identifying electrical cables and data network infrastructure. We also develop parts for customer-specific industrial applications.

The company offers more than 50 years of experience and is an IATF 16949:2016 quality approved manufacturer and distributor of cable accessories, test instruments, connectors and components for use within the electrical and associated industries.

The head office and factory is strategically located on the N3 freeway near Sandton in Johannesburg and there are stocking branch offices in Durban, Port Elizabeth and Cape Town.

HellermannTyton's sales personnel and a substantial network of distributors throughout southern Africa are constantly available to advise customers on the right choice of products, and to assist with finding solutions to any other specific needs.

HellermannTyton's motivation

Satisfied customers. Productive staff. Committed partners. In a world worth living in, today and tomorrow. That's what we work for. We measure ourselves by these goals and strive to improve continuously. It's the special spirit of the people who work at HellermannTyton that makes the real difference.

HellermannTyton's mission

- Deliver inventive solutions to all cable management challenges: For and with our customers around the globe.
- Facilitate effective collaboration and joint growth: For and with our partners.
- Create working environments where talent develops: For and with our staff.
- Act responsibly in ecological, economic and social terms: For and in our environment.



Head Office: Linbro Business Park

34 Milkyway Ave, Linbro Park,
Sandton, 2090

Branches:

Cape Town:

22 Montreal Drive, Airport Industria

Durban:

Riverhorse Valley Industrial Park

Port Elizabeth:

Butterfield Crescent Fairview

Interesting Facts

South Africa

510 Million

Products Produced



9



Production Processes

77



Production Machines

Raw Material
Converted



1200 Tons

48HRS

Order to delivery



95%

Order
Fulfilment



6500

Stocked
SKU's



1000 Tons



Stock to Branches



Stock to Customers

1200 Tons

20.8 million



Automotive
Fasteners

Marker Production

17.5 million



1-16mm²

Wire Size Range



CNC
Machining
Centres

7 Tons

Max. Mould
Handling Capacity



1280

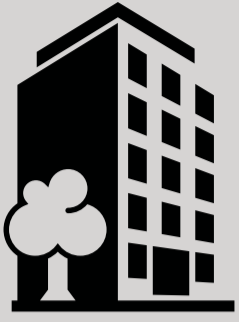
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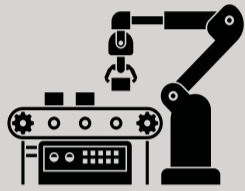
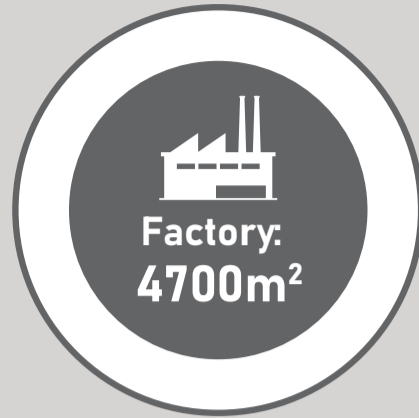
Pre-assembled
harnesses and cables

838

Tracker
Control
Boxes



Head Office:
Linbro Business
Park



Products: 6500

- Cable Ties & Fixings
- Electrical Installation
- Insulation
- Cable Protection
- Identifications Systems
- Crimping Terminals
- Test Instruments
- Electrical Tools



**Quality Assurance,
Safety, Health and
Environment**

- Management System Approvals:
- IATF 16949:2016 Quality Management
- ISO 14001 Environmental Management



Product Approvals:

- Compulsory specification (NRCS)
- SANS and IEC test specifications
- SANS 10142 code of practice for electrical installations
- Customer specific requirements

Social media:

Website

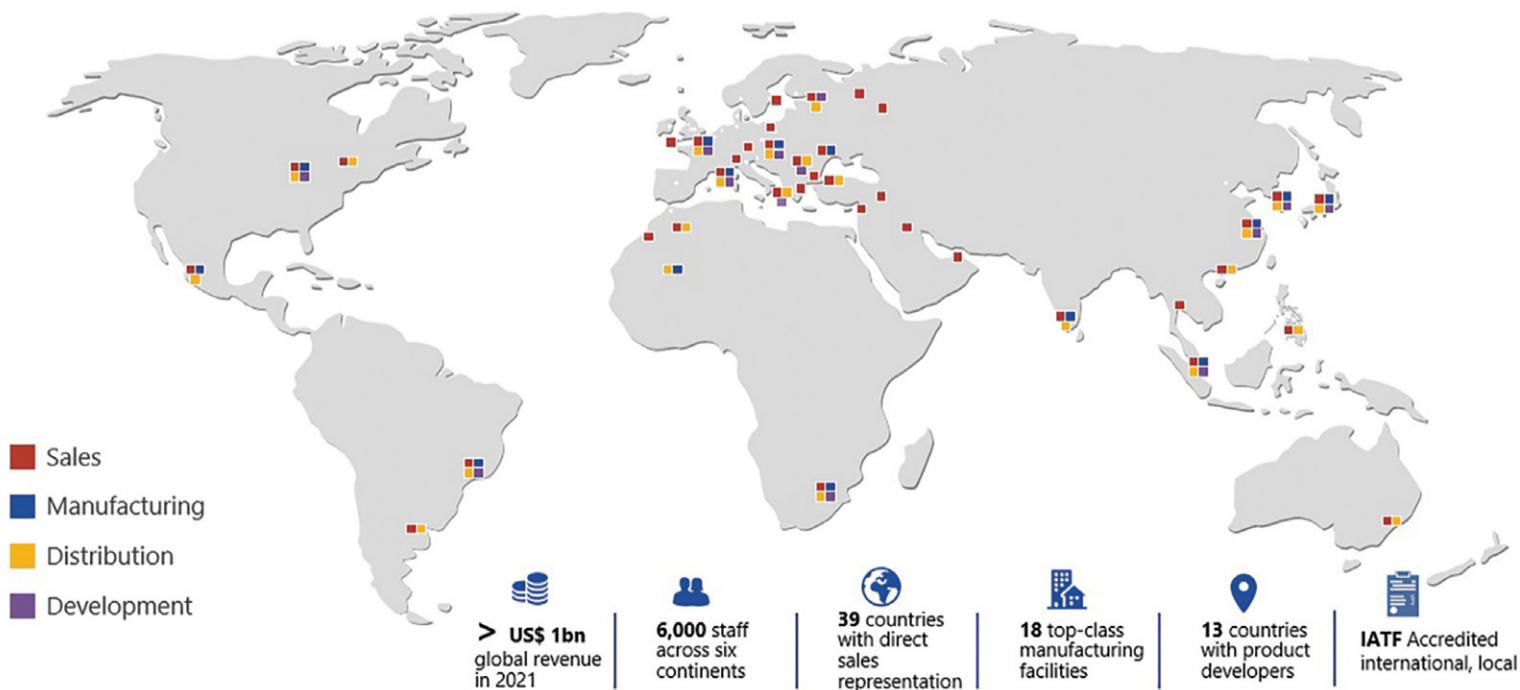
Twitter

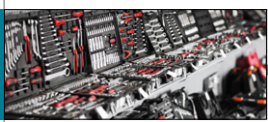
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Facebook

Our Global Footprint

Present in 39 countries around the globe.





Precision current loop calibrator

The Fluke 709 and 709H mA loop calibrators, available through Comtest, are specifically designed to save time and produce high-quality results. These calibrators are built around a user-friendly interface with a Quick-Set rotary encoder knob. This tool reduces the time it takes to measure, or source, current and power up a loop. The protective holster easily fits into a technician's hand and the large backlit display is easy to read, even in dark, cramped worked areas.

The 709H adds HART communications and supports a select set of the HART universal and common practice commands. This makes the 709H unique as both an affordable, compact loop calibrator and powerful HART communication troubleshooting tool. In the communicator mode the user will be able to read basic device information, perform diagnostic tests, and trim the mA output on most HART enabled transmitters.

In the past, this could only be done with a dedicated communicator, a high-end multifunction calibrator, or a laptop computer with HART modem. Fluke 709H will allow virtually any technician to service and support HART devices.

In addition, the 709H offers:

- Logging of HART data in the field. Once recorded by the 709H in the field, the 709H/ TRACK software can upload the HART configuration of up to (20) HART devices in your plant and output data in either (.csv) or (.txt) format.
- Data logged mA loop measurements and HART data can be recorded from a particular transmitter for troubleshooting and loop tuning. The data log feature offers selectable capture with recording intervals of 1 to 60 seconds and a logging capacity of 9800 records or 99

individual sessions. Each data sample contains the 709H mA measurement, all four process variables, and the standard status conditions.

Product highlights

- Best-in-class accuracy at 0.01% reading.
- Compact rugged design.
- Intuitive user interface with Quick-Set knob for fast setup.
- 24 V DC loop power with mA measure mode (-25% to 125%).
- Resolution of 1 μ A on mA ranges and 1 mV on voltages ranges.
- Built in selectable 250 Ω resistor for HART communications.
- Simple two wire connection for all measurements.
- Variable step and ramp time in seconds.
- Valve test (source and simulate defined mA values with % keys).

HART communication

The Fluke 709H offers a built-in HART modem for communication capability to perform the following commands:

- Read message.
- Read tag, descriptor, calibration date.
- Read sensor PV information.
- Read PV output information.
- Read long tag.
- Write PV ranges (upper and lower).
- Enter/exit fixed current mode.
- Set zero offset.
- Trim DAC zero (mA output 4 mA).



- Trim DAC gain (mA output 20 mA).
- The Fluke 709H also offers ability to store up to twenty HART device configuration files for uploading via 709H/TRACK software. via the 709H/TRACK software. Configurations can be stored as .csv or .txt files. This allows the end user to document plant HART.

Configurations can be stored as .csv or .txt files. This feature gives the technician direct access to key device parameters, allowing better troubleshooting, calibrating and maintaining of plant assets.

Fluke Calibration produces the broadest range of electrical, RF, temperature, pressure and flow calibration instruments and software available and are found in standards and calibration laboratories as well as industrial, plant and commercial facilities around the world.

Enquiries: sales@comtest.co.za. For product information, visit <https://bit.ly/3nhu00d>

The most powerful innovative cutting action – without a cable

Festool's addition to the 18-volt family, the AGC 18 V cordless angle grinder, boasts the most durable design, perfect ergonomic features for cutting work. The unique, completely sealed motor housing, protects the EC motor against dust penetration.

"With the new Festool AGC 18, we are offering a battery-operated powerhouse that sets new standards both in terms of durability and with its excellent ergonomics. The new cordless angle grinder is suitable for carpenters, joiners and painters equally, as it can be used to complete cutting tasks and small sanding jobs on construction sites without any cables," explains José Kunze, application specialist at Festool. The compact powerhouse fits into the Systainer with the battery and sanding tool fitted – so it takes no time at all to pack and unpack. The lockable spindle and quick-action clamping nut easily ensure fast disc changes while working without the need for tools. The AGC 18 also impresses with regard to ergonomics: The on/off switch is ideally positioned for cutting tasks – the entire device is perfectly balanced. In addition, the EC-TEC motor offers particularly smooth operation and low vibrations.

Brushless, powerful motor

The brushless and therefore maintenance-free EC-TEC motor is

at the heart of the new AGC 18 unit. It sits in a completely sealed housing, which protects the EC motor against dust penetration. The intelligent control electronics are also enclosed in a sealed housing to prevent the ingress of dust. The dust resistance and durability, combined with the comprehensive Festool service offer, make the AGC 18 V an outstanding safe investment.

The motor boasts a smooth start-up function and features an additional electronic overload protection. The digital temperature monitoring and motor brake make the machine even safer and more durable. These functions make it easier for users to control the machine and ensure greater safety while working. The speed of the AGC 18 can be continuously adjusted from 4500 to 8500 revolutions per minute, making it possible to always adjust it to the working material, the clever innovative features make the AGC 18 extremely robust, reliable, and durable.

Technical data AGC 18:

- Battery voltage 18 volt.
- No-load speed 4500–8500 (rpm).
- Disc dia. 125 mm.
- Spindle thread M 14.
- Li-ion battery capacity 5.2 Ah.
- Weight with Li-ion battery 2.7 kg.

Enquiries: www.vermontsales.co.za



The complete one-stop solution for advanced cordless power tools

"There is a tool for every job in the WORX range that is now available in South Africa," says Dean Lotter MD Brandroid the official agents for WORX. "Their tool and garden range is the largest in the country and growing by the month; not even the lockdown slowed their sales growth and drive. The brand looked for the gap for its new, innovative tools and introduced unique tools and garden equipment with innovation never seen in this country. No other brand has grown and established itself this," he says.

Since WORX was introduced in South Africa the brand has grown its cordless range to a massive 100 products, with new and upgraded products being launched monthly by the factory. The new range of WORX cordless power tools answers all your needs for outdoor/garden clean-up and the maintenance market, plus, everything you will ever need in the workplace, workshop, or factory. All the tools are cordless have interchangeable

batteries and chargers, driven by the latest 20 V Max Li-ion batteries and powerful long lasting brushless motors.

The international brand WORX is one of the first companies to successfully move to a more powerful 20 V, Li-ion battery for all its cordless machines, plus the option of three different battery power packs from 2.0 Ah, 4.0 Ah to 6.0 Ah. For those looking for a little extra the 8.0Ah is due for release shortly.

WORX also has a range of single and double-quick chargers along with the LED battery indicator which keeps you informed of how much charge you have left. The brushless motor is extremely efficient, having fewer moving parts, thus extending the life of the tool and offering a longer runtime. All the units form part of the WORX cordless 20 V PowerShare platform, which use the same battery pack and chargers.

Enquiries: www.worxsa.co.za





How to ensure that your tools are safe to use

Electrical contractors rely heavily on their tools to complete their tasks effectively and efficiently. This is why it is essential for electricians to inspect their tools regularly and ensure they are in good working condition. Inspecting tools should be a standard practice for electricians that helps ensure their safety and that of the people they work with or around.

Firstly, electrical contractors must regularly inspect their tools for any signs of wear and tear. This means ensuring that the tools are in good working order, and that no parts are loose or damaged. In particular, tools that are frequently used or subjected to heavy loads, such as wire cutters or pliers, must be checked regularly to ensure that they are still sharp and undamaged. Any tools that are found to be damaged or in need of repair should be immediately replaced or repaired to avoid potential risks.

Electrical contractors should always inspect their tools for any signs of corrosion or rust. This is particularly important for tools that are made of metal and are exposed to the elements, such as wire strippers or screwdrivers. If these tools are not properly maintained, they can become corroded and weak, which can lead to accidents or injuries. The best way to prevent this is to keep the tools clean and dry, and to oil them regularly to prevent rust and corrosion.

Thirdly, it is advisable for electricians to use tools that are properly insulated. This is essential when working with live electrical wires or circuits, as even a small amount of electricity can be dangerous or even fatal. Insulated tools are designed to protect electricians from electric shocks and other hazards, and should always be used when handling live wires. It is also important to inspect the insulation regularly to ensure that it is not damaged or worn, as this can compromise the safety of the tool.

Fourthly, electrical contractors should always use the right tool for the job. This means using tools that are appropriate for the task at hand, and avoiding using tools in ways they were not intended for. For example, using a screwdriver to pry open an electrical box can damage the tool if it is not designed for this purpose, and can also lead to accidents or injuries. Electricians should always follow the manufacturer's instructions for each tool and use them accordingly.

If you are doing electrical work, you must inspect their tools for any hazards or safety risks before each use. This includes checking for any exposed wiring or sharp edges on the tools, as well as checking that the tool is not damaged or malfunctioning in any way. It is also advisable to wear PPE (personal protective equipment) such as gloves, goggles, and earplugs to protect against potential hazards.

Lastly, electricians should store their tools properly when not in use. This means keeping them clean and dry, and storing them in a place where they will not be exposed to moisture, heat, or other hazards. It is also important to organise the tools properly, so that they are easy to find and access when needed. This not only helps to prolong the lifespan of the tools but also ensures that electricians can work safely and efficiently.

Inspecting tools regularly is an essential part of an electrical contractor's job. This ensures that the tools are always in good working order and safe to use. By following the guidelines outlined above, electricians can ensure that they work safely and efficiently, and minimize the risk of accidents or injury. It is important for electricians to take safety seriously, and to take all necessary precautions to protect themselves and others from harm.

Source: www.qualificationstation.com



Anti vibration technology features many benefits

Makita's innovative AVT, Anti Vibration Technology, uses the science of dynamic damping to dramatically reduce rotary vibration and at the same time increase impact power by up to 75%.

Makita's Anti Vibration Technology knows:

- How to generate power.
- How to manage vibration.
- How to bring you comfort.

Anti Vibration Technology in two of Makita's rotary hammer models, namely the HR4013C and the HR5212C will produce unrivalled lower levels of vibration. This is achieved by using active vibration absorbers, and damper springs to absorb the reaction force caused by the drill bit at the moment of impact.

The level of vibration is further reduced by completely separating the machine holding section from the motor/transmission section. Therefore, when the machine moves the handle stays still, similar to how a shock absorber works on a motor vehicle.

One of the extra features of these two models, is the soft no load function that reduces the vibration of the tool body when idling and accordingly decreases the amount of vibration to the operator's hands. It also minimises the deflection of the bit tip when you begin to chip.

Anti Vibration Technology has been designed not only for the two reasons above but also to provide operator comfort to power tool users that work for prolonged periods of time, reducing fatigue, accidents and even long-term injury.

Enquiries: www.makita.co.za

CONTINUED FROM PAGE 1

FALSE CLAIMS ON SOLAR STREET LIGHTS ARE HAVING A DETRIMENTAL IMPACT ON THE INDUSTRY

cost effective." Often, 120 and 150 W solutions are offered with very small batteries installed. The offer uses movement sensors to ramp up to the stated wattages for 5-10 seconds and for the rest of time remain in a dimmed state of under 10% of the stated output. Installation heights are normally decided based on the maximum wattage and therefore very little, if any, light would reach the lit surface below in the dimmed state. Effectively the customer pays the premium price based on the wattage and gets very little light out of the solution.

Good solar solutions are based on clearly stated technical information supplied to a prospective client which could easily be verified by use of simple tools like BEKA Schröder's Energy Storage Calculator, which is distributed at no cost to professionals and clients in the industry.

In closing, Kasper mentions that the secret is to design the most cost effective, technically balanced system which ensures the life of the system's heart, the battery is protected and does not suffer abuse due to a poorly designed system. But most

importantly, good quality LEDs with specifically designed optical solutions used to distribute the Light Emitting Diode (LED) output suited for each application will always be the key to offering the right light for each application. "You can have the most efficient light source, but if it provides a ball of light, which is a result of poor light distribution, this will always remain a challenge."

Let's not forget that at the end of the day, lighting manufacturers are selling a light fitting; not a solar panel, not a battery. So, the question that should be answered is, what is the size of the light fitting? Companies should declare the lumens and the wattage of the light fitting, along with the size of the battery and the size of the solar panel, as anyone in the know will understand what they are looking at. It is those who aren't in the know who are the ones who could be swayed by the false claims, and it is the public that suffers when the product doesn't provide adequate illumination.

Enquiries: www.giantlight.co.za and za.schreder.com



Cordless Innovation
Keeping you Productive

Cordless Rotary Hammers



DHR165ZK



DHR202ZK



DHR242ZJ





DHR280ZWJ



DHR263ZK



DHR400ZK

Batteries, charger, bits and accessories sold separately



a member of the **Hudaco** group

For more info. or your nearest Makita Dealer contact:
 JHB: 011 878-2600 • CT: 021 932-0588 • DBN: 031 717-6400
 MakitaPowerToolsSA www.makita.co.za



The best lighting choice for gardeners, garden designers and landscapers

Lightpro is one of Techmar's many brands and has an extensive range of lights to suit all tastes and applications. The brand is now available in more than 40 countries, including South Africa. It is the best choice for gardeners, garden designers and landscapers.

Marketing and communications manager for Lightpro, Wendy Beukers, explains why its market share is growing so enormously: "It is our mission at Techmar to make the outdoor

living environment attractive and safe. Techmar has been developing and selling garden lighting systems for over 20 years, so we really know this market. We continuously strive to stay ahead by developing new and innovative products every year."

Can landscapers install garden lighting themselves?

Yes; in the development of the high-end

Lightpro brand, a conscious choice was made for a 12 V system. As a result of this, no specialist electrical knowledge is required and a landscape gardening company can install the system quickly, simply, and safely. This ensures that a consumer not only has a safe system, but also only one point of contact for their entire garden construction. For the landscape gardener, this is an excellent opportunity to increase the

margin on their projects. Thanks to the low voltage, consumers can rest easy knowing that their outdoor lights are safe for children or pets.

From Dutch soil

All Lightpro products are designed in the Netherlands, and this is reflected in the design of the light fixtures. They are stylish, functional, robust and at the same time they meet the latest trends. Wendy mentions another important topic: "Because we control the entire chain ourselves, we are confident in the quality of the Lightpro range to be able to provide a five-year warranty on products. Another great thing about Lightpro is that most lights are dimmable. Although it was always said that dimming on 12 V was not possible, we managed to do it."

The award-winning connector

Whether you choose a ground spot, a post light, an LED strip or a wall fixture, they all have one connecting element – the Lightpro developed, award-winning connector. This easily connects all lights quickly and without any problems. As a landscape gardener you want to work quickly and efficiently and Lightpro's connector certainly contributes to this.

Smart lighting

The latest developments focus on home automation; everything, including outdoor lighting, is 'smart' these days. Lightpro is leading the way with its NXT series. The first smart phase has been on the market since the end of 2019: the Lightpro NXT Switch. By adding one or more NXT-Switches, you can control your system with an app. You can easily create zones and switch them on and off individually. The new phase will come this year – smart lights. You can then control the smart light individually with a smart phone app. You can, for example, dim the smart light and switch it to any desired colour. Do you want yellow light for the rhododendrons, blue for the pond or red for the roses? It is possible, and the possibilities are endless

The benefits of the 12 V system

Energy-efficient and durable:

- All Lightpro's light fixtures feature LED light sources.
- Extremely low energy consumption.
- Long service life.

Simple and flexible:

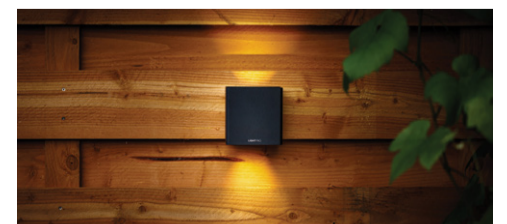
- The system operates on 12 V.
- Easy to fit.
- Easy to modify.
- No electrician required.
- Easily expandable.

Safe:

- 12 V is low voltage and therefore harmless.
- Safe for kids and animals.
- Safe to fit.
- No burying cables.

Lightpro is available in South Africa exclusively through WB Lighting.

Enquiries: www.wblighting.co.za





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Light, All Night, Every Night (T's and C's apply)

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Lithium Iron Phosphate (LiFePO4) Battery designed to last throughout the night, starting at 450mA at the beginning of the night and ending with 320mA at the end of the night.

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Telephone: (011) 704 1450

Email: otto@giantlight.co.za // wolfgang@giantlight.co.za // glenn@giantlight.co.za // derek@giantlight.co.za // ernest@giantlight.co.za

Website: www.giantlight.co.za



Terms and Conditions:
Light Fitting must receive at least 4 hours of direct sunlight per day OR 8 - 10 Hours of overcast light per day. Component failure is possible - fitting under 3 year guarantee.



How to layer lighting in the dining room

Your choice of lighting has a notable impact on the look and feel of a room. In the dining room, it sets the mood and creates an ambience. It also serves a functional purpose. The technique of layering lighting should be applied to all rooms of the home, and the dining room is no exception. By layering your lighting, you create a multi-dimensional effect, preventing the space from feeling flat and lifeless. These are our thoughts on layering lighting in your dining room.

What is layered lighting?

Layered lighting is a design technique where you combine different types of lighting. The three layers of lighting are known as ambient, task and accent lighting. Ambient lighting gives the room its overall illumination so occupants can move about it comfortably and safely. Task lighting provides focused lighting for specific activities such as reading, cooking, or working. Accent lighting is used to showcase and highlight certain features in a room, from architecture to artwork. When you combine these three layers you create a visually dynamic space that meets your functional and aesthetic needs.

Why is layered lighting important in the dining room?

In the dining room, layered lighting is important because it is a space where people gather to socialise and enjoy meals together. It is often also used for more task-oriented activities like build-

ing puzzles and completing homework or household admin. The goal is to create a warm and welcoming ambience, while also providing adequate illumination for dining and other activities. Connecting your lights to a dimmer switch will allow you to adjust the level of brightness in the room. This means you can have brighter light for projects and softer light for entertaining and relaxing.

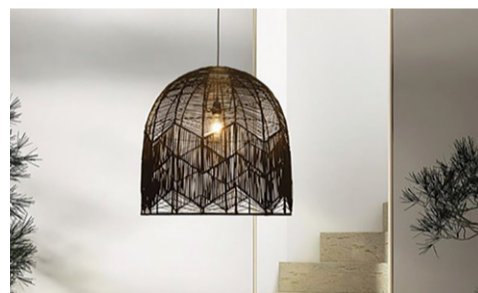
How to layer lighting in the dining room?

- **Ambient lighting:** Select a primary source of ambient light to give the room its overall illumination. A chandelier or pendant works well in this space. Keep in mind that the size and style of the fixture should complement the size and style of the room.
- **Task lighting:** Adjustable fixtures that

can be directed at specific areas are ideal for task lighting in the dining room but pendants, table lights and wall sconces can all work too.

- **Accent lighting:** To highlight any decorative elements or interesting architectural features in your dining room turn to recessed, track and picture lights.

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BUY LUMENS, NOT WATTS



When choosing a floodlight, look for the 'lumens' output. While the wattage indicated on the pack may be directly translated from the halogen equivalent, the lumens rating will give a more accurate idea of the brightness you can expect from your floodlight. In addition, LED lights use up to **80% less electricity** than halogen alternatives.

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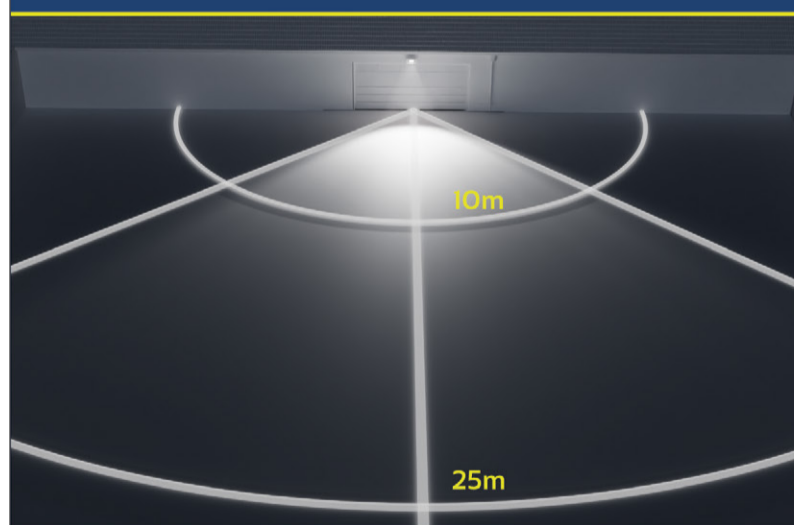
FS281 | **7500** LUMENS

COLOUR TEMP:
Cool White

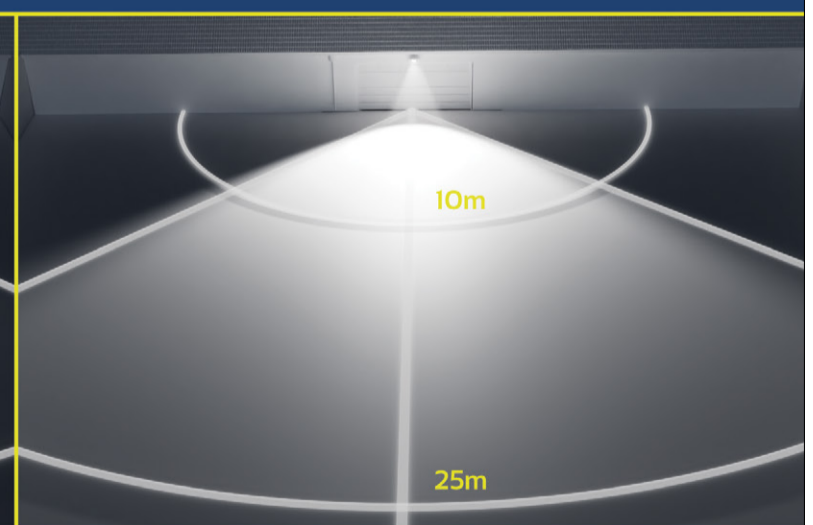
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Lighting your way



Human centric lighting: Back to the future

The invention of artificial light revolutionised society. It brought people indoors and extended working hours, night life and education far beyond sunset. Life as it is today would be impossible without light. Now, with the availability of new technologies, combined with a good understanding of how light influences human behaviour, we are set for the next era of illumination. We spoke to Dieter Lang, Expert for Human Centric Lighting in the R&D of LEDVANCE. Dieter is also chair of the standards committee FNL 27 at the German Institute for Standardization DIN and chair of the Expert Team HCL at the lighting division of the German Industry Association ZVEI.

All living species on earth have developed under the rhythm of day and night. Some animals or plants have adapted to the night, but most are diurnal and show their maximum activity during the day. Humans too have evolved as a day-active species and need daylight for their activities. Artificial light allows us to spend more and more time indoors and as a result we spend around 90% of our live apart from natural light. Often, we don't have the light levels which our biological system needs to function well.

While plants for decoration in a room are usually placed close to the window to receive enough light, people often suffer from a lack of bright light.

The influence of light

We know that plants cannot see, but still need light. In the same way, humans also need light not only for vision, but also for their non-visual, biological systems. Light has a significant impact on the performance, well-being and health of people. Light synchronises our day-night-rhythm with the natural course of day and night. Light allows us to be active, to concentrate and perform during the day. But it needs to be bright and similar to that of daylight in order to achieve this. In the evening, when the natural daylight gets darker and less blue, this helps to relax and prepare the human body for a good sleep at night. So, a warmer and darker artificial light is the best choice for the evening.

What seems to be normal and natural is usually not available in our indoor environment. In our offices, schools, hospitals, wherever we are during the day, we usually find the same static lighting all the time – day and night. Our indoor lighting is very far from what is natural and necessary for us.

Luckily new LED technology and intelligent lighting systems are giving us the opportunity to get over this. And not only has technology evolved to a point where a simulation of daylight indoors is feasible: our complete understanding of human biology and of the effects of light has evolved to the point where we can transfer this new knowledge into lighting applications. There are standards that allow us to transform scientific findings into practical applications. We have come to the point where the lighting paradigm has changed. From enabling vision, we have moved to supporting human performance, well-being and health. This is a revolution in lighting which has transformed illumination from a commodity into a health-relevant topic, comparable to good nutrition, sports activities and, in general, healthy ways of living.

Human centric lighting

The term Human Centric Lighting was first coined in 2010 and, since 2013, has been used extensively to indicate that lighting needs to go beyond vision and energy saving. Light has to focus on human needs and to support all aspects of human living as far as it can do so. It puts people in the centre of lighting design and is an abbreviated synonym for the need to include visual, biological and emotional aspects of light in the lighting design.

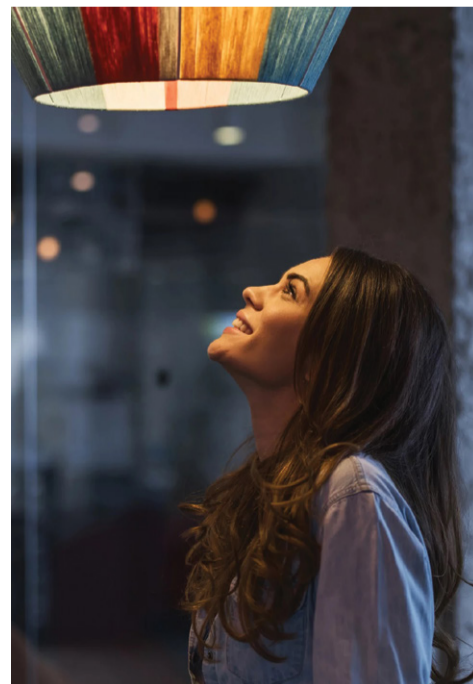
The potential of Human Centric Lighting was first proven in nursing homes. The success and the improvement of the residents' situation as the result of better light which supports especially those who are no longer able to leave the house, was so clear and impressive, that HCL solutions including daylight and artificial lighting were developed to a kind of standard in modern nursing homes.

This has been extended to many more fields of application as the result of various studies, which showed consistent results in numerous applications: from schools and hospitals, to offices, manufacturing sites and private homes. Each place where people spend their time indoors without sufficient daylight is a place for HCL. In hospitals for example, research has proven that illumination closer to natural lighting substantially supports care and recovery. It helps to restore sleep patterns in intensive care units and prevents depression. In schools, pupils as well as teachers benefit from daylight-oriented illumination levels. They increase concentration and alertness, while lower light levels can support relaxation by creating a calm environment. And, in the working environment HCL helps employees to perform better and to do their jobs successfully and without being too exhausted at the end of the day.

A question of a generation

Such a dramatic change in our understanding and in the use of lighting requires some time to establish. You need more than a light switch on the wall. The light must be controlled by an intelligent system. It will take some years until this is widespread across all offices, schools or other indoor environments where we spend our time. But anyone who has had the chance to experience a modern HCL solution would never like to be without it again.

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SHEDDING LIGHT WITH PHILIP HAMMOND



May 16th
International Day of Light

The International Day of Light

Last month I addressed the topic of lighting design software. On 20 April I presented a webinar comparing the two most used software suites namely Dialux Evo and Relux Desktop during which the opinions of international experts, academics and a university paper were given. I also gave the reasons why we chose Relux Desktop.

Subsequently, Relux gave Daniel Hammond and me insight into some of the brilliant enhancements that will be released during the remainder of the year before December. I am not able to share them with you at this time. All that I can tell you is that the new features will make Relux Desktop the undisputed leader in lighting design software.

Now onto the topic for this month. I am always intrigued at the way different professional practises and other business have very different experiences when it comes to new business.

Many professionals with whom we speak say that they are extremely busy with existing projects but, more importantly, that they have many new projects running into the future. Whilst there are other professionals and lighting companies who tell us they have few new projects on their boards.

The disparity prompts me to ask myself why this happens. Is it because some market themselves more professionally than others? Or, is it because the busy practises produce better work for their clients than the others?

We are very busy in both our businesses, BHA School of Lighting and BHA Lighting. Foreign student enrolments dominate. Come on South African prospective students, don't get left behind. We have incredible interest from the Middle East and India in the courses that we present. We have recently released the first of our courses in the Arabic language. We now have an engineer who actively markets our courses throughout the Middle East. We know that we will receive many enrolments this year from that region.

BHA Lighting has a substantial number of projects on hand already for the year. An additional four projects were awarded to us to complete the lighting designs in one day. The volume of project work is better than pre-pandemic times.

By the time that you read this edition of Shedding Light, we will have proudly participated in the UNESCO International Day of Light on 16 May 2023. To coincide with that date, our webinar on 16 May was titled "A celebration of Light" and presented by Panos Ioannidis, an internationally renowned lighting designer and founder of the Lighting Design Magazine. Panos and his brother were commissioned to do the lighting design for the Acropolis Museum and many other major projects throughout the Middle East and Greece. Our event featured in the UNESCO International Day of Light website.

Another event that was presented on the evening of 16 May was featured on the KykNet channel on the programme Prontuit which means 'Bluntly' in English. The programme focused on light pollution. Various experts were interviewed, and I was privileged to be in that group. I hope that many of you saw that programme, but if not, it will be available on Youtube.

We, as South Africans and internationally accredited and recognised educators in the field of illumination engineering, were pleased to have been part of the International Day of Light.

I hope that the year so far is a cracker. Pay no attention to the noise of politics and negative news events. Be positive and adventure into new territories.

Enquiries: phil@bhalighting.co.za

Researchers begin steps toward biodegradable electronics

Researchers at Linköping University and the KTH Royal Institute of Technology in Sweden, have created the first functioning transistor made of wood. This represents an early step in the development of biodegradable electronics.

The researchers started with balsa wood and removed the lignin that makes wood strong and rigid. This created cellulose fibres with hollow channels that were then filled with a conductive polymer known as PEDOT:PSS. The resulting component could regulate an electric current passing

through it, provide a consistent flow of electrons at a selected output level, and switch power on and off.

There is still a long way to go. The bulky wooden transistor took a second to switch off and up to five seconds to turn on. However, the wooden transistor marks progress toward biodegradable electronics and the goal of reducing e-waste.

The full research report was published in Proceedings of the National Academy of Sciences and can be found here: www.pnas.org/doi/10.1073/pnas.2218380120



LED retrofit lighting solution for Ga-Segonyana Municipality



The OMNISTAR-ECO offers a real alternative to luminaires equipped with traditional light sources.



The existing HID 400W HPS highmast lighting was replaced with the newly launched OMNISTAR-ECO floodlight.



The OMNISTAR-ECO floodlight can be installed in various applications due to its wide range of optical light distributions to meet the specifications of the area to be lit.

BEKA Schröder has supplied the LED retrofit lighting solution for street- and highmast lighting for Ga-Segonyana Municipality in the Northern Cape Province.

Highmast lighting

The existing HID 400 W HPS highmast lighting was replaced with the newly launched OMNISTAR-ECO floodlight. The OMNISTAR-ECO is an addition to the OMNISTAR family and has been designed to provide an energy-saving, performing and flexible floodlight for lighting areas where a quality replacement from conventional light sources is needed. This luminaire can be installed in various applications due to its wide range of optical light distributions to meet the specifications of the area to be lit.

The OMNISTAR-ECO guarantees optimal lighting to ensure safety and comfort. It offers a real alternative to luminaires equipped with traditional light sources, with the added advantages of an LED solution: improved colour rendering index, low energy consumption and low maintenance costs with a short payback time.

Streetlighting

The ZIYA-1 and LEDLUME XP 2 were used to replace the existing HID 70 W HPS, 125 W MV and 250 W HPS streetlight installation. The ZIYA range offers a superior lumen/watt ratio to deliver a high-performing, energy-efficient lighting solution at an affordable price for various landscapes, including pedestrian zones, streets, roads and car parks. The ZIYA range comprises of the ZIYA-1 and ZIYA-2 with aluminium housing, and the ZIYA-E with calcium-filled Polypropylene housing. Built to withstand high ambient temperatures and vandalism (IK 10) and with a high Ingress Protection level (IP 65), the ZIYA range provides a sustainable performance over time. The ZIYA range is the ideal tool to shorten the payback time of an LED lighting installation and to provide the best return on investment.

The LEDLUME XP offers optimised photometrical performance with a minimum total cost of ownership. It provides customers with the ideal tool to generate energy savings, improve lighting levels and reduce maintenance costs. The great variety of high-performance optics optimises the photometric distribution for each specific application to achieve minimum energy consumption. The LEDLUME XP offers flexible combinations of LED modules, a choice of currents and dimming options to further maximise energy savings and provide the most cost-effective solution.

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 Ga-Segonyana Municipality and Phepheng Project Management & Construction in providing a successful LED retrofit lighting solution for this project.

Enquiries: q.etsebeth@beka-schreder.co.za

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The versatility of the VERTICE is in a class of its own as it not only offers a variety of light distributions, but also **four different LED engine configurations**, providing an aesthetic look and feel to suit your application. Schröder EXEDRA and Schröder ITERRA **control options with external surge protection** are available.

The **optional battery back-up version** is the perfect solution for loadshedding. It provides four hours of back up lighting, and utilizes a fast-charging inverter, hence it charges up in time for the next loadshedding cycle.









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DOUBLE SONS

A woman had two sons. They were born at the same hour on the same day of the same month in the same year. However, they were not twins. How could this be?

MAY SOLUTION

Years earlier, three men had been stranded on a desert island. When they became desperate for food, they agreed to amputate their left arms in order to eat them. One of them, a doctor, cut off the arms of the other two men. Because they swore an oath to all have their left arm cut off, after they were rescued, the doctor had his arm amputated and sent to the other two men.

JULY 2023 FEATURES

- Cables and cable accessories
- Standby and emergency power
- Lighting

AUGUST 2023 FEATURES

- MCCs and motor protection
- Energy efficiency
- Lighting

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