

LESCO MANUFACTURING MARKS 25 YEARS OF EXCELLENCE, UPHOLDING FOUNDATIONAL VALUES

Jonathan Shapiro, the current Chief Executive Officer (CEO) of LESCO Manufacturing, proudly continues the legacy of his family's business, which began with his grandfather, Natie Shapiro, founding Switch King in 1958. Taking over from David Shapiro, his



LESCO Manufacturing's factory has been fitted with a solar photovoltaic system to reduce the company's reliance on Eskom, while also being more environmentally conscious.

father, Jonathan emphasises LESCO's commitment to inclusivity and top-quality manufacturing. "We have established ourselves as leaders in the industry, focusing on inclusivity and excellence," he says. "As we celebrate our 25th year in business, we reaffirm our dedication to these principles."

Steadfast Foundations

Since its inception, the company has been guided by four key pillars. "First, resilience defines our trajectory. From our origins as Switch King in 1958 to LESCO Manufacturing today, we have evolved into industry leaders," reflects the 33-year-old CEO. "Having spent 14 years working here, I understand the intricacies of our operations, which are a testament to our family's commitment to the business," says the CEO.

Acknowledging the challenges faced, Shapiro underscores LESCO's resilience and inclusive work environment. "We have weathered storms, emerging stronger each time. Our commitment to employing

individuals with disabilities reinforces our values, setting us apart," he asserts, crediting his father for instilling this ethos.

Innovation Drive

The second pillar is innovation, which is best exemplified by LESCO's modernisation initiatives that include the use of solar electricity to lessen its environmental impact. Along with the new factory, these sustainability initiatives reinforce their commitment to pioneering work and environmental responsibility.

Proudly South African

Shapiro feels passionately about LESCO's loyalty to South Africa and its people, resisting the importation of finished goods from China as so many of LESCO's competitors did. "Our direct-to-retail strategy, though challenging, reflects our dedication to providing the best quality product at the best price," he explains. "We have seen a shift in mindset post-Covid, with clients returning to us, reinforcing our decision to remain proudly local."

LESCO's focus on local extends beyond product to the stakeholders the company chooses to work with. Joining the business as non-executive chairman and equity partner in 2018, local businessman Siphon Nkosi says the company's magic lies in its integrity and focus on conducting inclusive and honest business. When asked about his involvement in the family-run business thus far – a departure from his days as CEO of Exxaro – Nkosi emphasises his relationship with David and Jonathan. "David is a solid rock and a fountain of innovation, continuously bringing ideas to life at LESCO. Jonathan, a calm visionary and a hardworking people's champion, is always driven by passion and excellence," he says.

Family legacy & accreditation

Transitioning from Sales Director to CEO, Shapiro acknowledges his father's continued guidance and expertise in the family business. "My father has remained an integral part of our operations at LESCO Manufacturing; his dedication to design and business acumen are invaluable," says the CEO. LESCO's accreditations affirm its commitment to quality and ethical standards. Shapiro highlights how these certifications reassure customers of product quality and dependability. "Our Proudly SA membership, Smeta, ISO-9001, and SABS accreditations validate our dedication to excellence," he explains.

Looking ahead

Expressing gratitude to stakeholders, Shapiro is looking forward to LESCO's future endeavours. The company is rapidly expanding its salesforce locally and internationally, and the CEO couldn't be more excited about what lies ahead for his company. "We are indebted to our clients and customers, partners, and suppliers for their support. Here's to another 25 years of innovation and excellence," he concludes, conveying both promise and optimism for the future.

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CBI-electric: low voltage gives tips for tackling today's loadshedding woes

Electricity Minister Kgosientsho Ramokgopa recently announced that South Africa's energy provider Eskom was able to provide 600 hours more

electricity during the past three months when compared to the same period last year. This does not mean loadshedding is easing up, though. Dr Andrew Dickson, Engineering Executive at CBI-electric: low voltage, says that while many people are turning to rooftop solar photovoltaic (PV) panels to provide power during loadshedding, microgrids could be an augmented solution to help overcome our energy challenges.

"Microgrids operate on the fundamental principle of bringing power generation to the

point of consumption, providing communities with autonomy over their energy needs," says Dr Dickson. "They are decentralised power systems that generate and distribute electricity locally, serving specific communities or individual facilities, such as university campuses, hospital complexes, business centres, or gated communities."

According to Dr Dickson, microgrids can be islanded – they can be disconnected from the national power grid, operating autonomously, with power typically being



produced from renewable sources like rooftop solar and small-scale wind turbines. "They can remain connected to the grid to draw power if it is required, but the primary goal is to enhance energy resilience, reduce dependence on the grid, and empower communities to manage their energy resources efficiently. Microgrids can mitigate the impact of loadshedding while also enhancing energy security."

Community coming together

Microgrid projects have had some success in trial applications, particularly in environments such as sectional title properties or gated communities. "They have the ability to leverage roof space, generate significant power, and accommodate large-scale batteries," explains Dr Dickson, adding, "The next step in the application of microgrids would be to make these systems completely independent, whereafter the concept could be expanded to larger areas, such as blocks within a neighbourhood."

Microgrid systems connected to the main distribution transformer rooms are already being explored in smaller, close-knit communities, says the engineering expert. "Community-driven microgrids foster collaboration, allowing residents to share, sell, and optimise their renewable energy resources." As such, microgrids have the potential to help alleviate the impact of loadshedding. "By creating microgrids within residential and commercial areas, we can form 'islands' that connect to the main grid but are also capable of independent power generation and sharing. This enhances community self-sufficiency. It also allows for bulk reselling of power back into the grid, streamlining interaction with Eskom rather than many individuals trying to sell power back to the utility."

Working as a team

Dr Dickson puts forward the idea of a model involving microgrid integration with existing infrastructure. "This would be a collaborative approach that allows groups to maintain and upgrade their microgrid infrastructure, creating employment opportunities and a self-sustaining system. Whether through a contract fee or a monthly stipend, the community could hold appointed individuals accountable for upkeep."

He points out that the model also suggests collaboration with utility providers for a higher-level supply agreement. "Keeping them in the loop or negotiating as a community could lead to a self-funding model, gradually allowing communities to be self-sustaining. I believe this approach has the potential to revolutionise power infrastructure for community independence and stability, along with greater resilience of the national supply," says Dr Dickson.

Enquiries: www.cbi-lowvoltage.co.za






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Introducing SupaSol: A new player in the solar solution market

Mario Maio, Founder, Owner and Chief Executive Officer (CEO) of SupaSol, expressed his excitement about this new offer, backed by over 40 years of engineering expertise, stating, "We believe that SupaSol is set to revolutionise the industry."

SupaSol has taken a lot of work to prepare and ensure that it is exactly what the country needs as our loadshedding and grid stability woes continue. "We are a passionate team," explains the CEO. "We are passionate about everything that our name goes onto, and the SupaSol range is a testament to that passion. We are starting with batteries and inverters, and we are looking to expand in the future with other solar components."

Mr Maio says that one of the driving forces behind his company's new range is its ease of use and efficiency. "We have purposely made SupaSol easy to install and configure, far easier than most other solar brands. There is still some configuration that needs to be done, as with any kind of electrical system, but when you realise how easy and quick the commissioning procedure is with SupaSol components, you will understand what we have been able to achieve with these products."

New kid on the block

SupaSol's renewable specialist Llewellyn Warrington says that he has not yet seen any other range with the ease of use that SupaSol has. "We have run hundreds of tests on our units to ensure that they work perfectly with our processes. When I tell you that it takes less than five minutes to

commission the system and bring it online, it will be less than that. In fact, it takes longer to watch a YouTube clip."

One of the major benefits of using the SupaSol range of inverters is that they come in bigger-than-standard sizes and are reliable. "Everyone in the solar business has been burnt at least once. You install a component, an inverter for example, and a week later it fails, and you are called out back to the job site to repair or replace it. That is not going to happen with SupaSol products. I put my guarantee to that," explains Warrington, adding, "One of the most attractive features of SupaSol inverters is their capacity. SupaSol's hybrid inverters come in a 6- and 10KW single-phase capacity at the moment, whereas our competitors offer a 5- and 8KW single-phase system. We are also looking into three-phase inverters, and Mr Maio is doing a lot of homework on those products."

Another benefit of SupaSol inverters is their Bluetooth connectivity, whereas most other brands only allow for Wi-Fi connectivity. "This is a huge bonus when it comes to the commissioning of a SupaSol system and remote monitoring," says Warrington. "You go to your phone's Bluetooth settings, find the inverter as a local connection, scan the barcode on the side of your inverter, and that is it – your system is now online." As with most other PV apps, users will have a full overview of their SupaSol system, including exporting excess power back into the grid (this is only available in Cape Town at present, where the city's government buys feedback power from the public legally).

It is not just the products that the SupaSol team is proud of – it is the customer care and after-sales services that truly set them apart from the industry. "We have gone the extra mile with SupaSol and its guarantees," says the solar expert. "We have all as installers been through the ringer with international brands. There is an inverter failure, and you have to go to the site, remove it, and send it back to the manufacturer. They then take 21 working days to assess the unit and give you feedback on whether you are going to have to pay for repairs or not. That is not the case with SupaSol. We come out immediately and assess the device that is causing trouble. Our policy with SupaSol is that you have to have a fully restored system within seven days."

Should there be an emergency and a replacement cannot take seven days, SupaSol will charge users an additional, small admin fee to speed up the process. "For this fee, we will get a replacement product out to you and into your system within 24 hours – that is our goal. We have a dedicated support channel on social media as well as WhatsApp, with technicians ready and waiting to assist you with any queries about the products," adds Warrington.



Synerji Track & Spot redefines the essence of home lighting

Illumination manufacturer Synerji has introduced a new Track & Spot light fitting that provides practical lighting as well as an aesthetic addition to any living space. Manufactured from aluminium, this contemporary fitting is the perfect blend of durability and elegance, explains Anthony Lloyd, Synerji's Chief Executive Officer (CEO). "Its design and versatile functionality make it an eye-catching addition to any room, promising to revive and create an inviting and comfortable atmosphere for you and your guests," he says.

The Synerji spotlight has a minimalist yet sophisticated look that adds a touch of style and modern charm to a home. Lloyd adds, "These spotlights are designed to enhance any interior design style, whether it is accentua-

ting a focal point, highlighting art, or simply brightening a corner. Their adaptability allows you to adjust the light according to your preferences and ensure that every corner of your home is in the perfect glow."

To withstand daily use, the Synerji spotlight is not only a light, but also a durable piece. Its aluminium construction ensures a long service life, while the modern design adds sophistication to your living space. Whether used individually or as a set, these spotlights are a functional lighting solution with a stylish accent that adds to the overall aesthetic.

"These fittings are the perfect harmony of form and function as you transform your home into a sanctuary of warmth and elegance. With Synerji, lighting goes beyond just lighting – it becomes a symbol of innovation, luxury, and timeless design," concludes Lloyd.

Enquiries: www.synerji.co.za

Mr Maio concludes, "I have been in this business for a long time, and I have not been this excited about a product in all that time. I believe that SupaSol is going to make renewable power supply more accessible to South Africans, and I look forward to seeing how SupaSol, and our team, can help many people."

Enquiries: www.supasol.co.za



Heat guns can transform your electrical work

Electrical contractors and electricians can use a heat gun, like the Makita HG551VK, as a versatile tool for various tasks, repairs, and maintenance. Here are a couple of uses:

Shrinking heat-shrink tubing

Heat guns are commonly used to shrink heat-shrink tubing, which provides insulation and protection for electrical connections. By applying heat evenly to the tubing, it can be shrunk securely around wires, splices, and connectors, creating a tight seal and preventing moisture ingress and electrical shorts.

Softening & removing adhesive

Heat guns can soften adhesive materials such as electrical tape or adhesive-backed cable ties, making it easier to remove them without damaging the underlying surfaces or leaving residue. Electricians can use heat guns to soften old adhesive before peeling it off wires, cables or equipment during rewiring or maintenance.

Thawing frozen pipes & locks

Not a common issue in South Africa, electricians may still encounter frozen pipes or locks during out-door installations or maintenance work. A heat gun can be used to apply heat selectively to frozen pipes or locks, thawing them safely and quickly without the risk of damage from open flames or excessive force.

Bending & shaping plastic conduit

When working with plastic conduit in electrical installations, electricians may need to bend or shape it to fit specific angles or configurations. A heat gun can soften plastic conduit, making it more pliable and allowing it to be bent or shaped without kinking or cracking. This is especially useful for runs around obstacles or tight spaces.

Removing paint & varnish

Heat guns can be used to soften and loosen



paint or varnish on electrical enclosures, conduit, or fixtures before removal or refinishing. By applying heat to the painted surface, an electrician can soften the paint, making it easier to scrape or peel away, saving time and effort compared to manual scraping or chemical stripping.

Drying moisture & insulation

In wet or humid environments, moisture can accumulate on electrical components, insulation, or wiring, posing a risk of electrical hazards. A heat gun can be used to dry moisture from electrical components, insulation, or wiring safely and effectively, restoring their integrity and reducing the risk of electrical faults or damage.

Loosening corroded fasteners

Heat guns can be used to apply heat to corroded or seized fasteners, such as bolts or screws, to help loosen them for removal. By heating the metal fastener, the expansion and contraction caused by thermal cycling can break the bond between the fastener and the threaded hole, making it easier to remove without damaging the surrounding material.

Enquiries: www.makita.co.za

WearCheck training program will keep your oil maintenance clean

Conditioning and monitoring company WearCheck is giving back to its customers with an advanced oil maintenance course. "Oil needs to continuously be monitored to ensure that it is working optimally," says the company. "Maintenance crew members can choose from more than 15 courses we present in a number of categories, including the energy and electrical industry."

WearCheck's training schedule has been in place for more than 20 years, and is overseen by Steven Lumley, Technical Manager at WearCheck. "Technology is developing at an exponential rate, and that which is used in the condition monitoring industry is no exception. Therefore, even experienced technicians need to brush up on new skills and learn about technical innovations as they become available on the market," she says.

WearCheck adds new content to the course material to address the need to educate maintenance personnel about newly introduced techniques that can boost accuracy and efficiency and make a condition monitoring programme even more effective. "It is important to attend the courses regularly, and not just on a once-off basis, to ensure that technical knowledge is up to date," says Lumley, adding, "At WearCheck, we are passionately curious about novelty and improvement in the condition monitoring arena, and we



Steven Lumley, Technical Manager at WearCheck

are proud to be able to share our knowledge with our clients."

The different courses are structured to be appropriate for several levels of skills and knowledge, from introductory for beginners, to extremely scientific and technical for industry experts.

WearCheck offers other on-site courses on request, including a customised oil analysis program for workshop technicians. Many of the courses count towards valuable CPD (Continuing Professional Development) points.

Enquiries: www.wearcheck.co.za.

ABB leads zero-waste drive with key product range

Global electrical manufacturer ABB continues its support of a waste-free future, now with the added benefit of using ABB products. "Together with our customers and partners, we are innovating to design and manufacture circular and more sustainable solutions," says ABB. "Our new EcoSolutions label ensures full transparency on environmental impacts, empowering smarter choices for a greener tomorrow."

ABB's EcoSolutions range of products include everything from the all-in-one TruONE, claimed to be the world's first true all-in-one automatic transfer switch, to surface-mounted junction boxes, next-generation mini circuit breakers, and AF contactors. "These products under the label offer high efficiency and recyclability, sustainable material and zero waste to landfill. The AF Contactors, for example, offer a reduction of the coil's energy consumption by 80%, letting you save energy at the same time," says ABB.

It is not just the zero-waste design and high recyclability benefits that make the range so attractive – they also make use of the most up-to-date technology. The contactors, for example, have

built-in surge suppression and push-in terminals that offer only one push for a quicker and safer wiring process. "We are constantly developing new technologies to improve our products and make them easier and safer to use, as well as more reliable," says Alessandro Bottarelli, Electrification - Smart Power Sustainability Leader at ABB's international head office.

Information is key

The EcoSolutions products all come with a dynamic QR code that provides customers with more information about ABB as a company, the product and its circularity rating. "This QR code should be seen as a passion for our customers, innovation and our planet," says Bottarelli. "All of the products in this range have earned their Environmental Product Declaration (EPD)." An EPD is a voluntary document that provides information on the impact of the product on the environment, from its manufacturing stage to its end of life.

Unlike many other companies, ABB chooses to have its EPDs provided by external companies that verify its products from a



neutral perspective. "This external certification is seen as the highest level of credibility by our customers. We are at all levels transparent, and this includes the environmental impact of using our various products," says the energy expert.

EcoSolutions products have all been manufactured with the least number of emissions possible by ABB, with Bottarelli adding, "The EcoSolutions branding and QR code highlights the care taken when we have manufactured the products and how we have made the solutions more circular." The manufacturing process makes use of green and recycled materials, and the factory waste has been diverted from landfills and treated with more care. Bottarelli adds, "We have increased the lifespan of our products so that you have to replace them with less frequency. We also

provide in the packaging a detailed end-of-life disassembly instruction to help make sure that our products are doing the best to help the environment as possible."

ABB's EcoSolutions line is a range the company hopes will demonstrate its commitment to transparency, sustainability and a greener, brighter future. "These are core principles that we have instilled throughout our value chain," explains Bottarelli, concluding, "It is our responsibility to preserve resources and make our products more circular for future generations. Every day we see more companies and legislation turning in this direction. With our EcoSolutions range, we want to share credible, transparent information about the environmental impact of our products."

Enquiries: www.global.abb



Advancing power grid resilience: MCE338-VAP three-phase multi-functional digital protection device

In the dynamic landscape of modern power systems, ensuring the reliability and stability of three-phase electrical networks is paramount. The MCE338-VAP three-phase multi-functional digital protection device serves as a frontline guardian, offering comprehensive protection and monitoring capabilities to safeguard against numerous faults and disturbances, says electrical distributor MCE Electric. Advanced devices like the MCE338-VAP play a crucial role in enhancing system resilience, efficiency, and safety, thereby supporting the seamless operation of critical infrastructure.

The MCE338-VAP device is equipped with sophisticated algorithms and communication interfaces to detect, isolate, and mitigate electrical faults with precision and speed. Key functionalities of the unit include:

- **Overcurrent protection:** Continuously monitoring the current across all three phases, the device triggers protective actions when currents exceed predefined thresholds. This safeguards equipment from damage during overload conditions and helps maintain system integrity.
- **Differential protection:** Employing advanced algorithms, the device compares currents entering and leaving protected zones to detect internal faults within the system. Differential protection ensures rapid isolation of faults, minimising their impact on system performance.
- **Voltage protection:** Monitoring voltage levels across all three phases, the device responds to abnormal conditions such as overvoltage or undervoltage events. Voltage protection mechanisms enhance equipment longevity and system reliability by preventing damage caused by voltage fluctuations.
- **Frequency protection:** Fluctuations in frequency can indicate disturbances or imbalance in the power system. The device monitors frequency deviations and initiates corrective actions to stabilise the grid and prevent cascading failures.
- **Monitoring:** KWH (Bidirectional, 6 digit + 2 decimals), voltage, current, leakage current, power, power factor, frequency, temperature and RS485 communication.

The deployment of three-phase multi-functional digital protection devices offers significant advantages to power system operators and utilities, including:

- **Enhanced reliability:** Rapid fault detection and isolation bolster the resilience of the power grid, minimising service disruptions and ensuring uninterrupted supply to consumers.
- **Improved safety:** Advanced protection features mitigate risks associated with electrical faults, safeguarding

- personnel and equipment from harm.
- **Operational efficiency:** Real-time monitoring and remote access capabilities streamline maintenance operations, reduce downtime, and optimise resource utilisation.
- **Scalability & integration:** Modular design and interoperability with existing

infrastructure enable seamless integration and scalability, ensuring compatibility with evolving operational requirements. Three-phase multi-functional digital protection devices represent a cornerstone of modern power system protection and monitoring. By leveraging advanced technologies and communication

capabilities, these devices fortify the resilience, efficiency, and safety of electrical networks, thereby supporting the reliable delivery of electricity to consumers and driving the advancement of sustainable energy infrastructure.

Enquiries: www.mce.co.za



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Mesh networks could be a superhighway to electrical saviour



Nishandra Bajinath, Systems Architect, Power Systems, Anglophone Africa at Schneider Electric.

Loadshedding and Eskom's inability to fix the failing national grid has caused chaos for almost two decades. According to Nishandra Bajinath, Systems Architect, Power Systems, Anglophone Africa at Schneider Electric, "Many power industry stakeholders are faced with mounting requirements for improved grid reliability, resilience, and distribution efficiency. It is a challenge that requires power service providers to rethink their infrastructure, particularly making the most of smart grid philosophies in their deployments."

There is help on the horizon, though: Mesh networks can overcome the limitations of traditional star networks, also known as 'Y networks', to provide the best of both radial feeder and ringed topologies to offer redundancy, flexibility, and robustness in power distribution.

"Mesh networks enable multiple power flow that can then include traditional grid power generation and distributed energy resources (DERs) from renewables," says Bajinath. "A mesh network therefore allows for multiple sources (generators, substations, battery energy storage systems or renewable energy installations), multiple loads, redundancy and flexibility (should one source fail or a fault occurs, the system can reconfigure itself by rerouting power through alternative paths), as well as isolation and restoration to get power back up and running."

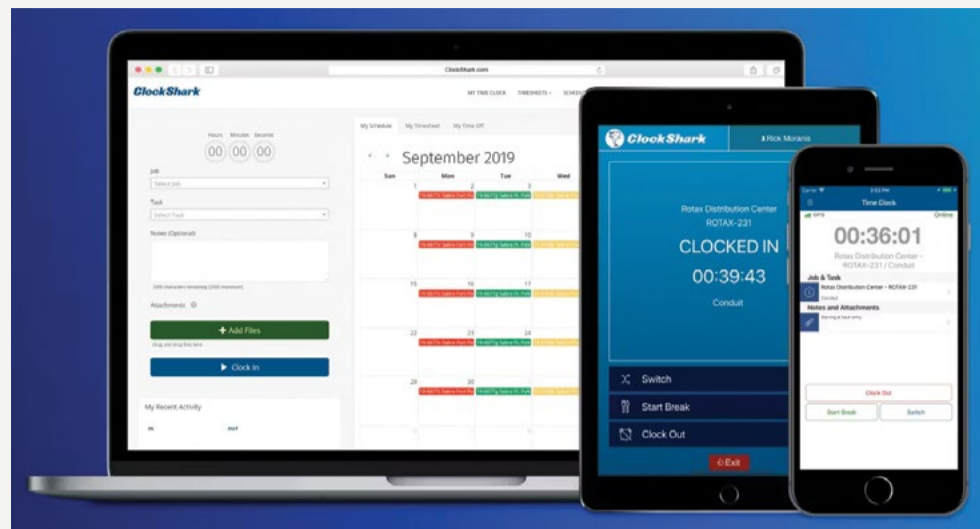
Mesh networks' fault detection is what sets them apart from other technologies. "In a typically scenario, the system will detect the fault, which can be a broken conductor or other equipment failure, and it will isolate this fault. The loads that were initially supplied by the faulted section are redirected to other available sources to ensure continuity of power supply," says the electrical expert. This gives operators the safe space to repair the system, and once this repair is completed, the system closes the switch or breaker, restoring the original configuration.

Ditch paperwork to keep track of jobsite time

Timecards are an unnecessary waste of time and admin in the modern world. Why worry about them when there are smartphone apps that make keeping track of time that much easier... and without the headache of doing office work?

ClockShark is an app for both Apple iOS and Android platforms. It is quick to download, and easier to use. It allows for several admin tools such as mobile time tracking, location tracking, scheduling, invoicing and reporting, all in the palm of your hand.

"This app and software is developed specifically for field service contractors," says Gary Specter, Group Chief Executive Officer for US software giant Simpro Group that bought the app for an undisclosed fee. "When you send a team out to a site, they waste precious minutes signing job cards and timecards – if the call-out is critical, you need to get your crew onsite as quickly as possible. ClockShark allows you to send all this information to your team while they are on the move, and they can easily complete the information when they get to the jobsite." The completed digital



forms are then uploaded to the ClockShark database without your team having to return to the office to do so.

The app syncs to a cloud server that you log into via computer or tablet, granting the administrator full access to collated data for invoicing purposes. "You can see complete information such as which team

was on site, who was on the team, how much inventory they used to complete the work, and so much more," adds Specter. "This means that you can send invoices timeously and manage your teams with more efficiency. Wasted time is wasted money, and that is something no business can afford."

Solar smart tracking system turns on maximum digital power



Leading international solar photovoltaic (PV) company TrinaSolar was at the Solar & Storage Live expo (see more on p6) where it unveiled one of its most exciting products. "We celebrate ideas and technology that is at the forefront of the transition to a greener, smarter, more decentralised energy system," says Abel Cordoba, a senior engineer who is involved with TrinaSolar's new solar products. "The Vanguard 1P is one of our most exciting new ranges, and has over 27 years' of research and development powering it."

The upgraded Vanguard 1P tracking solution has been designed to work with the company's SuperTrack algorithm that allows for increased energy production by articulating as the sun moves across the sky. "There is also the SmartBacktracking feature that reduces generation losses due to row-to-row shading in regions with multiple slopes," says Cordoba. "You are able to monitor and control your PV network from your smart device to increase your energy production by up to 8% a day."

The SuperTrack software is self-learning and allows for independent decision making, which means that users do not need to constantly check their devices to make sure that the PV panels are moving as needed – the system will alert operators of any issues that need attention. "Our digital software integration provides users with outstanding system stability and reliability, quick installation and flexible external compatibility. Our software application is state-of-the-art and delivers reliability, performance and efficiency, as well as being incredibly user-friendly."

"TrinaSolar has decades of experience in the solar industry," says Diego Lopez, another TrinaSolar engineer who was at the expo. "This has given us a knowledge base from which to design, develop and manufacture some of the best solar products in the world, like the Vanguard 1P and our software systems solutions."

The upgraded range has been in development for over two years and the two engineers are excited about the product when used with TrinaTrack Smart Cloud network. "The upgraded Vanguard 1P offers enhanced safety and reliability features, catering specifically to customers with requirements in composite application settings. It ensures optimal performance and stability that is enhanced when you use monitoring software like Smart Cloud. This allows for remote control, intelligent diagnosis, savings in operation and maintenance, as well as advanced warning and notification systems to keep you ahead of any issues that may arise."

Enquiries: www.trinasolar.com

Mesh networks offer a number of benefits:

Efficient utilisation: Energy flows through the most efficient paths, thereby minimising losses.

Minimised outages: Even during faults, most loads remain powered due to alternative paths that are managed by the mesh network.

Resilience: Mesh networks are incredibly resilient as they can adapt dynamically to faults.

Scalability: Mesh networks can accommodate additional sources and loads as needed, meaning you will not need to constantly upgrade your network to accommodate upgraded demands from your machinery.

Schneider Electric's EcoStruxure Microgrid Advisor IoT (Internet of Things) platform optimises the operations of mesh network and other DERs by leveraging predictive algorithms and real-time data. "This is achieved through weather data

subscription which allows for 24-hour advance forecasting on what renewable energy production is expected. Furthermore, when the scheduled grid outage period is added, the machine learning (ML) algorithms will determine the best way to manage the available energy resources in addition to enhancing the load management based on expected available energy," concludes Bajinath.

Enquiries: www.se.com/za

Solar & Storage Live 2024: A success story

Held towards the end of March 2024, the Solar & Storage Live South Africa expo took place at Gallagher Estate & Convention Centre in Midrand, Johannesburg. With over 500 exhibitors both local and international, 200 guest speakers, and 20 000 attendees, the expo has been hailed as a success as new products and technologies were on display for distributors and guests.

Among the experts giving talks, lectures and demonstrations were Ana Hajduka, founder and CEO of Africa GreenCo in the United Kingdom, Zoe Aspara Nambahu, Chief Legal Advisor, Compliance and Company Secretary for Nampower in Namibia, and Amith Singh, Head of Energy Finance for local financial institution Nedbank.

Local distributors and manufacturers put on an incredible display, starting with Rubicon's huge stand complete with electric vehicle charging system. Electronic vehicles are gaining momentum across the country, with more and more EV charging ports popping up. The Cape Town expo in August was recently announced, but here is a look at some of the stands at Solar & Storage Live 2024 Joburg and the services, products and technology heading to South African consumers during the year...



Solar photovoltaic panels had a strong showing, with new monocrystalline technology and new tracking systems on display.



HellermannTyton's display focussed on securing tools used to stabilise PV systems.



Enclosure specialist Allbro had some of its industry-leading products on show.



Monocrystalline solar panels are the new 'it' product in the solar world.



ACDC Dynamics had its range of brand-new SupaSol inverters and batteries taking centre stage at its stand – read more about the exciting brand on page 3.



ARB had one of the smallest micro-inverters at its display.



Battery expert Revov had some interesting storage and battery products on show, including a multi-tiered rack to increase storage capacity.



Portable power supplies are becoming more transportable – power stations now come on wheels for easy manoeuvrability.



Tool and equipment distributor Comtest had the latest products from Fluke on show.



SEW-Eurodrive pushes motor efficiency and sustainability progress

Companies in various sectors across Africa are wanting to harness the power of modern advancements in drive technology, and SEW-Eurodrive is providing solutions and the support, says Jonathan McKey, National Sales & Marketing Manager at SEW-Eurodrive.

"Many operations around the continent are still using conventional technology but are looking for ways to improve efficiencies and productivity with geared motors. They are also wanting to reduce their carbon footprint and energy costs, and we have the solutions for them."

SEW-Eurodrive is driving a concerted strategy to bring these solutions closer to customers through extending their local in-country presence. Having expanded and upgraded their facility in Aeroton near Johannesburg, SEW-Eurodrive now boasts entities in Zambia, the Democratic Republic of Congo (DRC) and Kenya. The office in Tanzania has been in operation and delivering considerable success for a decade already.

"This year we are setting up additional resources in Botswana, Zimbabwe, Eswatini and Mozambique," says Tebogo Molo, who oversees Business Development in Africa for the company. "Our philosophy is to build local businesses on the strength of local expertise and market knowledge, bringing us closer to customers with enhanced offerings of technology and services."

With the local representatives being well qualified and experienced in their markets, SEW-Eurodrive supports them with the necessary facilities and stockholding, as well as specialised training.

"From our in-country bases, we are closer to customer sites and can deliver high value



Jonathan McKey, National Sales & Marketing Manager at SEW-Eurodrive.

technical support when requested during our visits," says Molo, emphasising that site visits from SEW-Eurodrive's teams to customers can become both more frequent and more valuable. "Regular engagement means that we build our relationships of trust with customers, by seeing their working environment and understanding their needs and challenges."

McKey adds that SEW-Eurodrive is actively diversifying its offerings in Africa to meet each market's specific requirements. Having established a firm base in South Africa over the decades as a geared motor specialist, it has grown into after-sales service and industrial gear (IG) units.

"Given the large installed base of geared motors and IG units in Africa, we can now also service and repair competitor products by leveraging our growing technical capability around the continent." He concludes by saying, "We also conduct energy audits, and advise on our energy efficient solutions to reduce costs and carbon footprints."

Enquiries: www.sew-eurodrive.co.za

Siemens TiaStar MCC range continues to impress

Global electrical leader Siemens continues to advance technology with its TiaStar range of motor control centres (MCCs) that are designed to provide reliable, efficient, and flexible motor control solutions for industrial and commercial applications. "The TiaStar range falls under our Totally Integrated Automation (TIA) portfolio, offering seamless integration with Siemens' automation and control products for optimised performance and interoperability," says the brand.

Modular design & scalability

The MCCs feature a modular design that allows for easy customisation, expansion, and scalability to meet specific application requirements. The modular construction enables the integration of various motor control devices, including starters, contactors, overload relays, circuit breakers, and variable frequency drives (VFDs), into a single compact enclosure.

Flexible configuration options

The Siemens' range offers flexible configuration options to accommodate different motor control and protection needs. Customers can choose from various MCC types, including fixed, plug-in, withdrawable, and combination units, with options for vertical or horizontal bus arrangements, front or rear access, and various enclosure materials and ratings.

Intelligent motor management

TiaStar MCCs incorporate intelligent motor management features such as advanced motor protection relays, communication interfaces, and diagnostic capabilities, to monitor motor performance, detect faults, and provide predictive maintenance alerts.

Energy efficiency & sustainability

These MCCs are designed with energy efficiency and sustainability in mind, featuring energy-efficient components, variable speed drives, and power management capabilities to optimise motor performance and reduce energy consumption. Siemens' energy-saving technologies, such as regenerative braking, power factor correction, and load shedding, help minimise operational costs and environmental impact.

Remote monitoring

As part of Siemens' automation drive, the range supports remote monitoring and maintenance capabilities, allowing users to access and control MCCs from a central location using Siemens' remote monitoring software or cloud-based platforms. Remote diagnostics, predictive analytics, and condition monitoring tools enable proactive maintenance, troubleshooting, and optimisation of MCC performance, reducing downtime and improving asset reliability.

Enquiries: www.siemens.com

Wiring your motor the correct way

Wiring accessories for motor control applications encompass a range of components and devices designed to facilitate the safe, efficient, and reliable connection, control, and protection of electric motors in various industrial, commercial and residential settings. These accessories play a crucial role in ensuring the proper functioning and performance of motor-driven equipment, says US-based motor control specialist IndustLab. "It is as important to maintain your motor control accessories as it is to maintain your actual motor. This maintains system integrity and will ensure correct, efficient operation," says Uziel Salgado, founder and Chief Executive Officer of the Texas company.

Motor starters & contactors

These are electromechanical devices used to control the operation of electric motors. They provide remote or automatic start/stop functionality, overload protection, and short-circuit protection for motors. Motor starters and contactors are available in various types, including direct-on-line (DOL) starters, star-delta starters, and soft starters, depending on the motor's size, type and application requirements.

Motor protection devices

Devices such as overload relays, thermal protectors and circuit breakers safeguard motors against overheating, overcurrent, and short circuits. These devices monitor motor conditions, detect abnormalities, and

interrupt power supply to prevent damage to the motor and associated equipment. Motor protection devices are essential for maintaining motor reliability, efficiency, and safety in demanding operating environments.

Motor control switches & push buttons

Motor control switches and push buttons provide manual control and operation of electric motors. They allow users to start, stop and reverse motor rotation, as well as control motor speed and directionality. Motor control switches and push buttons are installed in motor control panels, control stations, and operator interfaces for convenient and ergonomic motor control.

Terminal blocks & connectors

These accessories connect and terminate electrical wires, cables, and conductors in motor circuits. They provide a secure and reliable connection between the motor, power supply, control devices, and auxiliary equipment. Terminal blocks and connectors come in various types, including screw terminals, spring terminals, and insulation displacement connectors (IDCs), to accommodate different wire sizes and connection requirements.

Motor cable glands & conduit fittings

Motor cable glands and conduit fittings provide cable entry and protection for motor wiring in harsh or hazardous environments. They seal and secure

cables to motor enclosures, control panels, and junction boxes, preventing moisture ingress, dust contamination, and mechanical damage. Cable glands and conduit fittings ensure compliance with safety standards and regulations for electrical installations.

Motor capacitors & run/start capacitors

These electrical components are used in single-phase induction motors to improve starting torque, power factor, and motor efficiency. Capacitors store and release electrical energy to assist in motor starting and running operations. Motor capacitors are essential for ensuring smooth motor operation and preventing motor stalling or overheating during startup and operation.

Motor control panels & enclosures

These accessories house motor control devices, wiring accessories, and electrical components in a protective enclosure. They provide a centralised and organised location for motor control and protection equipment, facilitating installation, maintenance, and troubleshooting of motor-driven systems. Motor control panels and enclosures are designed to withstand environmental conditions and provide electrical safety for personnel and equipment.

These wiring accessories are essential for the installation, operation, and maintenance of electric motors in a wide range of applications, including industrial machinery, HVAC systems,

pumps, fans, conveyors, and automation systems. "By selecting the appropriate wiring accessories and implementing proper motor wiring practices, electrical professionals can ensure the reliable performance, longevity, and safety of motor-driven equipment in diverse operating environments," says Salgado.

Source: www.industlabs.com





Considerations for selecting motors & drives: Maximising efficiency & reliability

Selecting the correct motors and drives might not always be in the spotlight, but it is a crucial decision for maximising efficient and reliability in operations across various industries. One often underestimated aspect of this selection process is the total cost of ownership. It's not just about the upfront price; it encompasses maintenance and energy costs over the equipment's entire lifespan. By making thoughtful choices, you can achieve significant energy savings and overall cost reduction.

Jaco Brits, Projects & Technical Manager at WEG Africa, unpacks the general factors that should be considered when selecting motors and drives.

Energy efficiency

"Energy costs can be a substantial part of your operational expenses. That is why opting for energy-efficient motors and precise variable speed drives is vital," says Brits. "Investing in energy-efficient equipment reduces your carbon footprint, and in the long run it also adds up to your cost savings."

Matching the right equipment to the application

Consider the specific application that you will be focussing on and the conditions in which your motors and drives will operate. "These components may face tough and extreme environments in which they could be exposed to dust, moisture, temperature variations or even corrosive substances. Ensure they are built to withstand these challenges with appropriate ingress protection (IP ratings) and specialised coatings."

Choosing the correct motor type

There is no one-size-fits-all when it comes to motors, says Brits. "Induction motors are common, but certain applications may benefit from more specialised options like permanent magnet synchronous motors." The key is to match the motor type to your equipment's load profile.

Variable speed drives for efficiency

"Look into whether variable speed drives can optimise your energy usage by adjusting motor speed to match your equipment's needs," says the technical expert, adding, "They can also reduce wear and tear and energy spikes during start-up and shutdown, contributing to your overall efficiency."

Electrical compatibility

Make sure the voltage and frequency ratings of your motors and drives align with your electrical supply. If needed, use transformers to bridge any gaps, says Brits. Compatibility with your existing control systems and automation infrastructure is also crucial.

Safety & Compliance

"Always verify that the motors and drives you select comply with industry safety standards and regulations," says Brits. Features like overload protection and emergency shutdown capabilities are essential for a safe operation, so opt for a supplier with a solid track record in safety and compliance.

Meeting operational requirements

It is vital to understand specific operational needs of equipment including factors like torque, speed and duty cycle. "Your selected motors and drives should be capable of handling the operational requirements. Lastly, give consider scalability for future growth or equipment expansions."

When to use regenerative drives

In situations where frequent deceleration or braking occurs, consider regenerative drives. The WEG executive explains that these drives can recover and reuse energy to improve efficiency and reduce costs.

Reliability & low maintenance

Prioritise reliability and maintenance. Motors with sealed bearings and minimal maintenance requirements can help reduce downtime and operating costs, contributing

to smoother operations.

Brits says, "A well-planned approach for motor and drive selection can lead to cost reduction, enhanced efficiency, and reliable operation across various industries. Seeking advice from experienced professionals provides valuable insights, and dealing with a world class OEM such as WEG will ensure that you make informed decisions for long term success."

Enquiries: www.weg.net

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Amprobe cable locator means no more hassle with cable fault diagnostics

Accidentally hitting a power cable (or any cable for that matter) during a project can lead to costly repairs and create seriously hazardous safety situations. Digging in the wrong place can also lead to significant and unnecessary delays, not to mention run-on costs for the project. Distributed in South Africa by tool leader Comtest, the UAT-600 cable locator from US-based Amprobe, makes finding cable faults a hassle-free task.

"The locating kit comes complete and ready for use with a transmitter, receiver, test lead kit, batteries and additional fuses, all in a mobile, protective duffle bag," says Comtest. The UAT-620 kit also includes a signal clamp for transmitting a signal when it is not possible to make electrical contact with the cable that needs to be traced. "For applications where ground fault locating is required, the UAT-600 transmitter can be used in combination with the optional A-frame accessory to make the job easier," adds Comtest.

The cable locator allows for multiple tracing modes that assist in locating and tracing energised and de-energised utilities in a variety of applications. The distribution giant adds, "The unit's intuitive transmitter automatically selects the correct locating function based on the connected accessory, and that includes selectable 8/33 kHz frequencies." What stands out about the



UAT-600 is its display – the receiver features a high-contrast LCD screen that allows for clear viewing in full sunlight, as well as an automatic backlight for shaded and dark areas.

With electricity being such a dangerous scenario to be working in, Amprobe has ensured that its products feature safety measures of the highest level, and the UAT-600 is no different – it is rated CAT IV 600 V, ensuring ultimate safety when users are working with energised, live cables. The semi-automatic gain control quickly detects the tracing signal and allows precise adjustment of the receiver sensitivity, and the device has an accurate depth measurement to 6.1m and can trace utilities buried up to 30.5m.

The device is water and dust resistant with an Ingress Rating of IP54, and it is also drop-proof to 1m.

Enquiries: www.comtest.co.za

Lightweight, "shapeable" cable protection from Igus

Available in South Africa directly, polymer energy chain manufacturer, Igus has introduced E4QL e-chain for enhanced cable management and protection, now with increased unsupported lengths and higher fill weights.

"Our industry standard E4Q product has been tweaked," says Michael Blass, Chief Executive Officer (CEO) e-chain systems at Igus's head office in Germany. "The new 'L' (Lean) variant has been specially designed for users who find our E4Q too large for their application and system."

"To offer users the advantages of the E4Q in these applications as well and at a lower price, we have developed the L version – the E4Q.64L," says Ian Hewat, Managing Director (MD) of Igus South Africa. "Depending on the width, the low-cost version of the energy chain costs between 15% and 20% less than the E4Q."

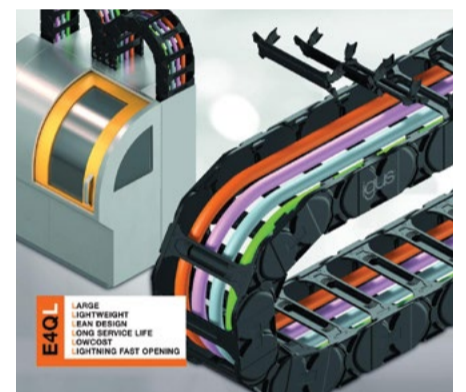
To reduce costs, the company's designers have modified the E4Q's construction. "The aim was to strike a balance between low dead weight and maximum robustness. The side links are narrower than those of the E4Q, reducing the weight. The bionic design, which dispenses with any material that has no load-bearing function, was retained. Tests in the Igus test laboratory prove that the E4Q.64L has

an approximately 30% greater breaking moment than the 14240 series, which is also used for unsupported applications. This results in up to 20% more length with the same fill weight," says Hewat.

The new e-chain can also be operated in two bending directions by replacing the outer link with a special reverse bend radius link. "This means that circular movements can be implemented on a robot's axis 1, for instance," adds the MD.

When unlocked on both sides of the e-chain, the crossbar can be lifted out with minimal effort, making the Igus E4QL a lightweight cable management and protection system that can be used in smaller-scale applications without the need to modify it.

Enquiries: www.igus.co.za



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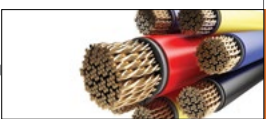
Local cable gland manufacturing company CCG Cable Terminations has reason to smile – it is working on projects that are literally out of this world. "Following the recent success in supplying cable glands for installation on the National Aeronautics & Space Administration (NASA) Artemis rocket mobile launch platform in the United States, our cable glands have been specified for installation on Europe's first vertical launch space port in the United Kingdom's (UK) Shetland Islands," says the company.

The UK has solidified its place in the European space race with the construction of its first spaceport on the remote Scottish island of Unst situated in the Shetland archipelago about half-way between Norway and the Faroe Islands.

SaxaVord Space Port is UK's first spaceport that allows vertical take-off by rockets. Officials estimate that up to 30 rockets can be launched from SaxaVord each year, with the first launches planned for mid 2024. The spaceport has attracted three Launch Service Providers (LSPs) to use their facilities: Scottish-based Skyrora, US-based ABL Space Systems, and Venture Orbital Systems from France.

"CCG will supply cable glands to the construction of the SaxaVord Spaceport, which will comprise three launchpads and associated infrastructure, a satellite tracking facility, hangarage and integration facilities, a range control centre and a fuel storage facility," says the company, adding that it was able to "demonstrate extensive independent third-party testing and certification to stringent international and UK standards that cover short circuit testing, electromagnetic compatibility, vibration resistance, high cable retention loads, explosion protection, corrosion resistance and stringent ingress protection ratings".

Enquiries: www.cccablegland.com



Voltex provides cable measurement tools to power your work

Electrical distribution giant Voltex, with 54 stores conveniently located across the country, continues to make electrical work easier by providing its customers with brands and products of the highest standing and quality. Major Tech's MT720 Digital Clamp Meter is one such product, packed full of features that makes working with electrical cables easier.



The clamp measures AC current up to 400A, and AC/DC voltage all the way up to 1 000V, with the information displayed on a large, clear and easy-to-read digital LCD screen that provides users with all of the important data you need. The LCD also has a Data Hold function, which means that the data displayed on the screen will remain on display until you measure something else.

The 30mm clamp jaw opening makes it a simple process to measure any cable on a jobsite – you squeeze the trigger on the side, then gently close the jaws on the cable that you are working with. The device features a double moulded rubber housing that makes it easy to handle as well as hold onto, so you should be able to keep a firm grip while working with it.

Electrical work can happen at any time of day or night and in any number of spaces, so Major Tech has had ingeniously had a flashlight built into the meter, which means you will never be left in the dark while working with the MT720. It can also measure capacitance on cables, plus 100ms inrush current and Peak Voltage value. The clamp has a resistance up to 40MΩ, and features temperature measurement of 1 000°C, as well as non-contact voltage detection.

Enquiries: www.voltex.co.za

New solar power cable trend turns towards aluminium core

Japanese cable manufacturer GBP says that its new aluminium-cored cables for use in solar photovoltaic (PV) systems will soon become the standard. "There are performance benefits to using aluminium over the traditional copper core, but the real benefit is the anti-theft potential of our new range," says the company.



Aluminium costs significantly less than copper. South Africa has long been plagued with copper thieves destroying infrastructure such as traffic lights and telephone lines, all in the name of stealing the metal cable in the centre.

"The conductivity of aluminium cables is around 60% that of copper but it is almost 60% lighter in weight when compared to copper. By selecting an appropriate size cable, you can achieve the exact same performance as with copper conductors," says the technology supplier. "Our new aluminium cables are also far more flexible than the traditional copper-cored cables, so this makes installation easier and quicker, so you will save on installation costs too."

There is another benefit to using cables with aluminium cores than copper, says the Japanese company. "Our cables will allow you to reduce the cost of a PV project by up to 10% in some cases. We are looking at making the cables smaller for home PV systems, but right now they are best used in medium-to-larger systems."

To date, the cables have been given approval for use in more than 15 European countries including Germany, Italy and Spain.

Source: www.gbp-global.com

A single source of termination accessories

While Pratley is well-known in the electrical industry for its high-quality cable glands and junction boxes, it also manufactures and supplies a range of additional electrical products that complement its current range, highlights Eldon Kruger, the company's Marketing Director.

Pratley PVC electrical tapes

Fitting a cable gland into an installation requires electrical tape to insulate the connection to the apparatus. Pratley supplies PVC electrical tapes for normal application and a flame-retardant version. The latter is mostly specified by large industry, mining, and municipalities. Both PVC tape ranges comply with SANS 122, a requirement of most large institutions.

Specialised tapes for high-voltage applications include Pratley Rubber Tape, a tough, insulating, and self-amalgamating tape ideal to insulate busbars, transformer bushings, cable tail connections, and high-voltage terminations.

Another popular tape is Pratley's High-Tension Splicing Tape, a self-fusing tape with excellent electrical properties. The tape is ideal to splice electrical terminations and for corona-resistant insulation. The breakdown voltage of the tape is 23kV per 0.5mm.

All Pratley tapes are packaged in useful reusable containers to protect them from contamination, like steel filings or coal dust, when stored in your toolbox.

Blanking plugs

Pratley supplies a wide range of blanking plugs to blank off unused entries on any junction box with an unused open cable entry. They are available in both nickel-plated brass and a tough engineered plastic. The blanking plugs are for general-purpose applications or for use in explosive atmospheres and Ex-rated applications.

Pratley cable retainers

These anchor the cables or piping onto angle iron. They are supplied for use on both 25mm and 50mm angle iron. Small or large versions are available to suit any type of strapping material, from cable ties to stainless steel strapping. Each retainer has four possible fitting positions depending on the cable size that needs to be clamped to the angle iron – simply turn the retainer to the correct size to match the cable size.

"Most electrical installations require these products to complete an electrical installation," notes Kruger. "The benefit for customers is that they do not have to shop around for these accessories and can procure them from one company. It saves a lot of time and resources for the end user."

Kruger notes that Pratley conducts ongoing research and development to meet the needs of its diverse customer base.

"We have competent and skilled design engineers who are constantly developing new and innovative product solutions for our customers. We also have a state of the art electrical testing facility to develop and test new products."

Pratley prides itself on customer service and developing innovative solutions for its customers. It also has highly qualified technical staff in all the large centres, both locally and internationally, to assist with any application requirement. "It is our policy to design, develop and manufacture products that outperform any other directly competing product on the world market. This is a very bold statement to make, and we stand by it," says Kruger.

Enquiries: www.pratleyelectrical.com






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Why utilities and the industry should consider medium-voltage XLPE cables over PILC cables

Paper-insulated lead cables (PILC) have been in use for more than 100 years in medium-voltage (MV) applications ranging from 6.6KV up to 36KV, and on the odd occasion they are used in high-voltage systems as well. PILC has been preferred over the years due its high dielectric strength, low dissipation factor, relatively low dielectric loss, low sensitivity to direct current (DC) testing, and proven reliability. PILC has become less popular over the years though, with it being replaced by cross linked polyethylene (XLPE) due to factors impacting its cost-effective use. Many cable manufactures around the world have discontinued PILC due to the related reduction in demand as a result.

Electrical engineer Donemore Torerwa, who is General Manager: Product Development & Applications at leading manufacturer Aberdare Cables, says, "XLPE as an insulating medium has a lower dielectric constant, lower dielectric loss, high dielectric strength, and operates at higher temperatures. This allows the cable to be more efficient when carrying far more current than the same size PILC version. Generally, XLPE is preferred by customers for factors to do with ease of use, efficiency, less complexity when it comes to using accessories and more."

Below are a few reasons why XLPE is chosen over PILC for MV cable insulation:

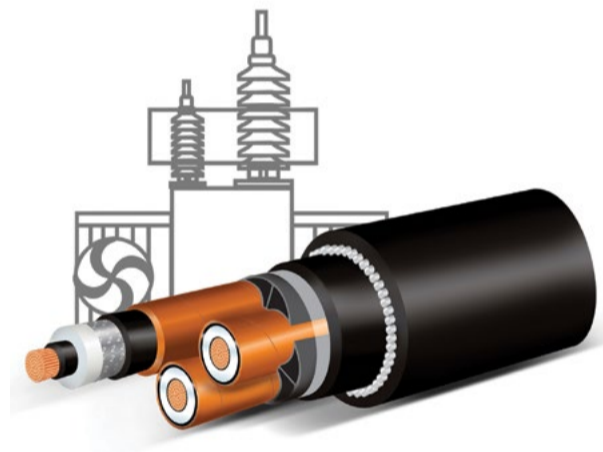
- XLPE has a higher current rating compared to the same size PILC cable due to XLPE having a higher operating temperature.
- Installation, maintenance and repair processes are more complex, intensive, timeous, and costly for the PILC version, which makes XPLE the better business option.
- Accessories such as jointing and termination kits are not easy to locate as many factories worldwide have discontinued paper cable production.
- There is a significant skills shortage for splicing, jointing and termination of PILC which as a result leads to an increase in the number of PILC failures due to suspected poor workmanship.
- Although PILC has been somewhat better at providing radial water blocking properties with the lead sheath, which is completely

impermeable, XLPE is also available in cost-effective water blocking formats for both longitudinal and radial water blocking upon request. Aberdare Cables is one such manufacturer that can adapt products to suit client needs.

- XLPE cables are more flexible compared to PILC cables that increase in rigidity as the size of the cable increases. XLPE can therefore be used easily where shorter bending radius is required.
- Paper-insulated lead cable is oil impregnated with mineral oil or PIB and has a lead sheath (heavy metal) that increases the risk of environmental contamination. XLPE is favoured where an environmental analysis is considered as a key consideration for design decision.

"Aberdare Cables offers XLPE cables up to 132KV for customers across Africa and around the globe," says Torerwa. "For voltages higher than 132KV, XLPE cables can also be provided by Aberdare Cables through its parent company Hengtong Group in China."

Enquiries: www.aberdare.co.za



Cu-flex busbar from Referro Systems introduces new cabling options

Distribution company Referro Systems is continuing its busy start to 2024 by introducing to the South African market the Cu-Flex copper busbar from Danish electrical brand Cubic. What sets this product apart is that it is flexible, which makes system design more flexible itself.

By definition, electrical busbars are metallic strips or bars inside switchgear, panel boards, or other electrical distribution equipment. It facilitates local high-current power distribution and avoids problems when joining two cables into one since it acts as a junction where the incoming power and outgoing power meet.

Cu-Flex flexible copper busbars are manufactured from strands of copper wires that are woven into a flexible busbar. "Using a proprietary technique, the ends of the busbar are forged into a solid unit," says Referro, adding, "The insulated and flexible busbar provides time saving and maintenance-free connection contact surfaces for motor control centres, switchboards or industrial control panels." The busbars are supplied ready for use without users having to shorten and strip the wires, make holes, or complicated bends.

The Cu-Flex busbars add new options, opportunities and advantages to electrical systems, and can be used for several applications including:

Battery systems: In large-scale energy storage systems or electric vehicles, Cu-flex busbars can be used to connect battery cells or modules.

Electrical connections: Cu-Flex busbars provide a reliable, low-resistance connection between electrical components such as transformers, circuit breakers and other busbars. "They are particularly useful where vibrations, thermal expansion

or movement could cause rigid connections to fail. Cu-flex busbars also offer flexibility to accommodate changes or additions to the systems," says Referro.

Industrial machinery: Flexible copper busbars like the Cu-Flex system can be used for power transmission, control systems and motor connections.

Moveable equipment: These busbars are perfect for use in electrical systems where weight savings and flexibility are essential, such as in aircraft wiring.

Power distribution: Busbars can be used to connect large electrical equipment, such as generators and substations, as well as smaller equipment.

Power electronics: In power electronic devices such as inverters and rectifiers, Cu-Flex busbars can be used to connect semiconductor devices, capacitors and other components to ensure system integrity.

Reliable earthing: Cu-Flex busbars can be used for grounding and connecting various electrical components, giving operators peace of mind that their electrical system is safe to use without the threat of failure and injury to staff.

Renewable energy: Wind turbines and solar inverters can benefit from the flexible copper bars if they are utilised to interconnect components and carry high currents generated by these renewable energy sources

Cu-Flex busbars have been tested, approved and certified under various authorities such as DEKRA (Deutsche Kraftfahrzeug-Überwachungs-Verein) and DNV (Det Norske Veritas). Cu-Flex technology is also UL (Underwriters Laboratories Inc) recognised in category Component - Panel Board & Switchboard Accessories.

Enquiries: www.referro.co.za

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Keep your solar-powered lights on this year by choosing the proper panels

There is no space for complacency when it comes to solar photovoltaic (PV) panels. While they may all look alike, there is something very important you need to know before buying and installing your PV system, says lighting specialist Radiant. “Monocrystalline silicon panels are the new standard. We are constantly launching new solar panels, and one of the most important aspects to know is whether your PV panels are monocrystalline or polycrystalline.

Knowing the difference

It is difficult to tell the difference between the two just by looking at them. Rather, you need a much closer look, down to the crystal structure. Monocrystalline panels are made from single-crystal silicon ingots that are sliced into thin wafers, which results in a uniform crystal structure with all atoms aligned in a single direction, maximizing electron flow and efficiency. Polycrystalline panels meanwhile are made from silicon wafers that are cast from molten silicon and cooled in a multicrystalline structure. This results in multiple crystal grains of varying sizes and orientations within each cell, which can lead to lower efficiency compared to monocrystalline panels.

“The introduction of monocrystalline panels to lighting products has been a gamechanger as they exceed consumer expectations in sustainability, performance, and visual appeal,” says Radiant, adding, “The monocrystalline manufacturing process is a meticulous one that results in a uniform, pure composition. This purity means that the PV panels can exhibit superior performance in harnessing solar energy, with monocrystalline panels operating optimally in warm environments.”

How do monocrystalline silicon panels work?

“At the heart of monocrystalline silicon panels lies the PV effect. When exposed to sunlight, the semiconductor material within the panel absorbs photons, freeing electrons and creating an electric current,” says the lighting manufacturer. This direct current (DC) is then converted into usable alternating current (AC) through an inverter, providing a clean and sustainable source of power.

What are the benefits of monocrystalline silicon panels?

- Monocrystalline panels boast a higher energy conversion efficiency, explains Radiant, ranging from 15% to 22%. “The singular crystal structure allows for more effective light absorption, making them exceptionally efficient in transforming sunlight into electricity.”
- With a higher energy conversion rate, monocrystalline silicon panels can generate more power per square metre compared to other solar panel technologies. This space efficiency is particularly important in applications where available surface area is limited, such as in compact lighting products.
- “Monocrystalline silicon panels have a longer lifespan compared to

alternative solar technologies. The single-crystal structure contributes to enhanced durability, ensuring these panels can withstand environmental stressors,” says Radiant.

- Monocrystalline panels also exhibit superior performance in low-light conditions. This ensures a consistent

power output, making them a reliable choice for lighting products that need to operate under overcast skies or during the evening.

- The sleek and uniform appearance of monocrystalline silicon panels, often with a black or dark colour, contributes to their aesthetic appeal. “This feature is particularly valuable in integrated lighting products where design and visual appeal are essential considerations,” concludes Radiant.

Enquiries: www.radiant.co.za



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ILLUMINATING THE INDUSTRY WITH ANDREA

Beyond the label: Effective residual lumens for real-world lighting performance

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



When choosing a lighting setup, what is advertised on the box does not always translate to the real-world performance. This is especially true for nominal lumens, which often overestimate a luminaire's (lighting fixture) brightness over time. Effective

residual lumens offer a more accurate picture.

LED luminaires are expected to maintain brightness throughout their lifespan, which is considerably longer than traditional light fittings. However, factors such as lumen depreciation (gradual light loss) and ambient temperature can significantly impact this. Understanding how these factors interact, known as 'lumen and temperature behaviour', is crucial for choosing long-lasting, high-performing luminaires.

While lumen per watt (lm/W) is a common efficiency metric, focusing solely on this data can be misleading. To ensure a lighting system meets required standards (Lux levels, OSHA, SABS, etc) and that it maintains performance, lighting specialists need to consider a broader range of light characteristics.

For example, delivering a good return on investment (ROI) for clients means ensuring the promised performance aligns with reality. This requires understanding how lumen depreciation and temperature affect a luminaire, then selecting products that meet the project's specific needs.

Manufacturers rate LED products based on their ability to retain a certain percentage of initial lumens over time. These ratings can vary significantly, though. To set accurate expectations, it is vital to consult the manufacturer's data sheets on lumen maintenance under specific operating temperatures.

In essence, effective residual lumens



are about understanding how lighting performs over any given period, particularly in varying temperatures. By considering both lumen depreciation and temperature behaviour, lighting professionals can make informed decisions that lead to better lighting outcomes and a maximised return on investment. If

you are being sold a lighting solution based on price alone and these points are not being addressed as you make your decision, you should be wary. Chances are that great price point is likely going to come back to haunt you when your illumination solution does not light your world as you had hoped.

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BEKA Schröder leads the way with Pretoria East boulevard installation



Leading luminaire manufacturing company BEKA Schröder was chosen as the lighting supplier on the newly constructed Hazeldean Boulevard in Pretoria East, Gauteng.

"This is a brand-new construction that has only just been handed over to the City of Tshwane by Balwin Properties," explains Benita Delpont, who is part of the BEKA Schröder sales team. "The road spans 3km and includes an underpass at the N4 highway, linking Ridge Road in the Hazeldean Precinct with Lagoon Drive in Riverwalk."

Hazeldean Boulevard links Mamelodi and Silver Lakes, and its construction is intended to relieve traffic pressure on Silverlakes Road which has been under strain for the past few years.

"We opted for BEKA Schröder's LEDLUME 1 and LEDLUME 3 luminaires," says Heinrich le Roux, Senior Sales Representative at BEKA Schröder.

"They have been designed and manufactured in South Africa, taking the continent's harsh environmental conditions into account, thus ensuring maximum product lifetime."

The LEDLUME range is available in four sizes for flexibility and versatility. "The different sizes make it easier for us to provide a customised solution that meets the requirements of the application," say the sales experts

The LEDLUME range has a useful lifetime of up to 100 000 hours with a lumen depreciation of not more than 30%. It 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.

Enquiries: www.beka-schreder.co.za



Sustainability is key, says Eurolux

In a world that increasingly values sustainable alternatives, solar floodlights stand at the forefront of innovation in outdoor lighting. The simple and genius solution of harnessing the sun's power to generate light and create security has now become commonplace, and illumination master Eurolux explores the most important factors to consider when purchasing fixtures for your property.

Look at lumens, not watts

Traditionally, wattage has been the standard metric for measuring the brightness of light bulbs. But when it comes to solar floodlights, lumens are the more accurate indicator of brightness. "Lumens measure the total amount of visible light emitted by a source, providing a better gauge of a light's actual brightness. For outdoor spaces, consider higher lumen values for increased visibility and security," says Eurolux. Look for solar floodlights that provide sufficient lumens to meet your specific illumination needs.

Consider colour temperature

Beyond brightness, consider the colour temperature of the solar floodlights that you choose for your installation. Colour temperature is measured in Kelvins, with lower values (around 2700K) producing

warm, yellow light, and higher values (5000K and above) delivering cool, bluish-white light. "Our new solar floodlights have high values of around 6000-6500K to deliver clear visibility," says the team.

Select motion sensor designs for enhanced security

"Many high-quality solar floodlights come equipped with motion sensors, enhancing security and energy efficiency. Motion sensor lights activate when movement is detected, providing an added layer of safety, and discouraging potential intruders. When purchasing solar floodlights, consider models with adjustable sensitivity and duration settings to tailor them to your specific requirements," explains Eurolux.

Check for robust materials

Outdoor lighting faces exposure to various weather conditions, so it is important to choose solar floodlights that are designed for durability and weather resistance. "You should also take note of the IP (Ingress Protection) rating – an IP65 or higher rating indicates protection against dust and water ingress. Additionally, consider the build quality, materials used, and any certifications for durability in challenging outdoor environments. Eurolux's new

range features ABS, PC, metal and anti-UV materials in their design and manufacture.

Understand the advantages of LiFePO4 batteries

The lighting specialist explains that the type of battery technology used in any solar floodlight has a massive impact on the fixture's performance and lifespan. "LiFePO4 batteries (lithium iron phosphate) are gaining prominence for their superior characteristics. These batteries offer a longer cycle life and can endure more charge-discharge cycles. They are also known for their impressive thermal stability and safety profile, reducing the risk of overheating or thermal runaway. The LiFePO4 batteries found in our new solar floodlights are one of their major selling points with homeowners, architects and project managers recognising their superiority.

Opt for monocrystalline silicon panels

Another standout feature of these fixtures is their monocrystalline silicon panels. Their benefits are numerous, ranging from high efficiency because of their single-crystal structure, to their compact size. "They are able to perform superiorly in low-light conditions," says Eurolux. "With a longer lifespan, exceptional durability, and the ability to harness energy even in less-than-

ideal weather conditions, monocrystalline silicon panels make our new flood lights a robust and efficient outdoor lighting solution."

Think about adjustable mounting

Consider the flexibility of mounting options when selecting solar floodlights. Lights with adjustable brackets or flexible mounting arms allow you to direct the light exactly where it is needed. This adaptability ensures optimal coverage and illumination of specific areas within your outdoor space.

So while there may be a great many floodlights on the market, these handy tips will help you make a wise selection, to ensure both longevity and performance.

Enquiries: www.eurolux.co.za



Signify's Ledalite NatureConnect brings outdoor light inside

Circadian rhythm lighting is the next big thing for illumination, with many companies now introducing 'natural' lighting to their product line-up. Leading international brand Signify has unveiled its circadian rhythm lighting range, called Ledalite NatureConnect. "Light helps us see better, and function better," says Signify. "Humans spend more than 90% of our time indoors, often in locations without enough windows or proper access to daylight. This stops people getting the light they need to perform at their best."

Signify's range mimics daylight by simulating the sun's daily patterns. "The technology we have used replicates a view of the sky using light recipes that boost energy levels and help indoor spaces feel in sync with nature," explains Signify, adding, "Our range of NatureConnect lights allow for light behaviour, where our advanced content and intuitive control settings allow users to adapt and adjust the lighting to their needs."

More than meets the eye

Signify's circadian rhythm products feature Day Rhythm Mode, which provides dynamic lighting that follows the sun's daily journey across the sky. "This is the automatic mode profile for the fittings, and it runs as soon as the light is switched on. It ensures that users get the right light at the right time of day," says the brand, with the artificial sun seemingly crossing the sky when users look up at the lights.

The circadian rhythm allows people to receive an instant energy boost when exposed to the light. It also helps to relax and clear users' minds, as well as focus their attention on their activities. Through research, Signify calculated that its products are able to provide 250

lux during a four-hour period, with the company even able to advise users on their positioning of tables, chairs and other features to ensure the perfect lighting is achieved.

Signify have gone one step further, though, with the addition of its Light Scene setting. "This feature is controlled via a dedicated user interface, where users are able to change the colour hue being emitted by the NatureConnect light, with a range of colours preloaded." This allows brands to match their NatureConnect light to their corporate colours without the need of special bulbs.

The tools you will need

Signify has made the installation and commissioning process for its circadian lighting as easy as possible. You need the Ledalite NatureConnect luminaires, the NatureConnect link box, a sensor, wireless switches and

the Signify Interact app.

Signify's switches are preprogrammed with four lighting settings (all of which are also available on the app): Day Rhythm, to mimic the sun's movement for the day; Present, to automatically start at the sun's current position in the sky; Relax, which provides mood lighting that puts your body in a relaxed state without the need for mental tools such as meditation; and Energize, which assists in restoring the body's energy levels through lighting.

Setting up and personalising the Signify NatureConnect app and luminaires takes minutes. "We have designed our Interact app to be intelligent and intuitive. Someone who has never used this kind of tool before will be able to master it within minutes," says Signify. "Health and wellness is at the core of this product range, and we believe that it is going to provide our customers with a circadian rhythm lighting option that exceeds all others in performance," says Signify.

Enquiries: www.signify.com



LED plant tech heads into space

The National Aeronautics & Space Administration (NASA) has sent a new crew of astronauts to the International Space Station (ISS) armed with more plant lighting research to conduct. "The team has been tasked with examining, in particular, the effects of ultraviolet rays on horticulture and plant growth in a zero-gravity environment," says a spokesperson for NASA.

The use of LEDs in space is not new – a team of experts tested new circadian rhythm technology late last year. However, the new research is meant to supplement existing NASA research, in conjunction with the Japanese space agency, Japan Aerospace Exploration Agency) to investigate algae as a possible source of oxygen in space.

"We have focused our attention on plants such as thale cress, which has been used in plant research for a number of years," says NASA. "This research will examine the effects of stress on plants from microgravity and high UV radiation exposure on a molecular, cellular and individual level. This we hope will lead to a greater understanding of plant growth in space, and support development of improved plant cultivation for the Moon and Mars."

Source: www.nasa.gov



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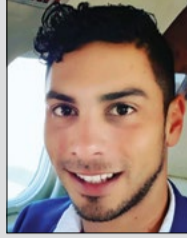
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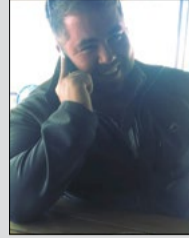


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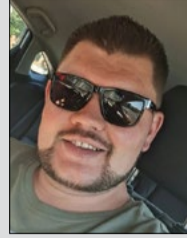


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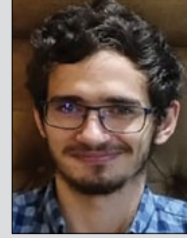
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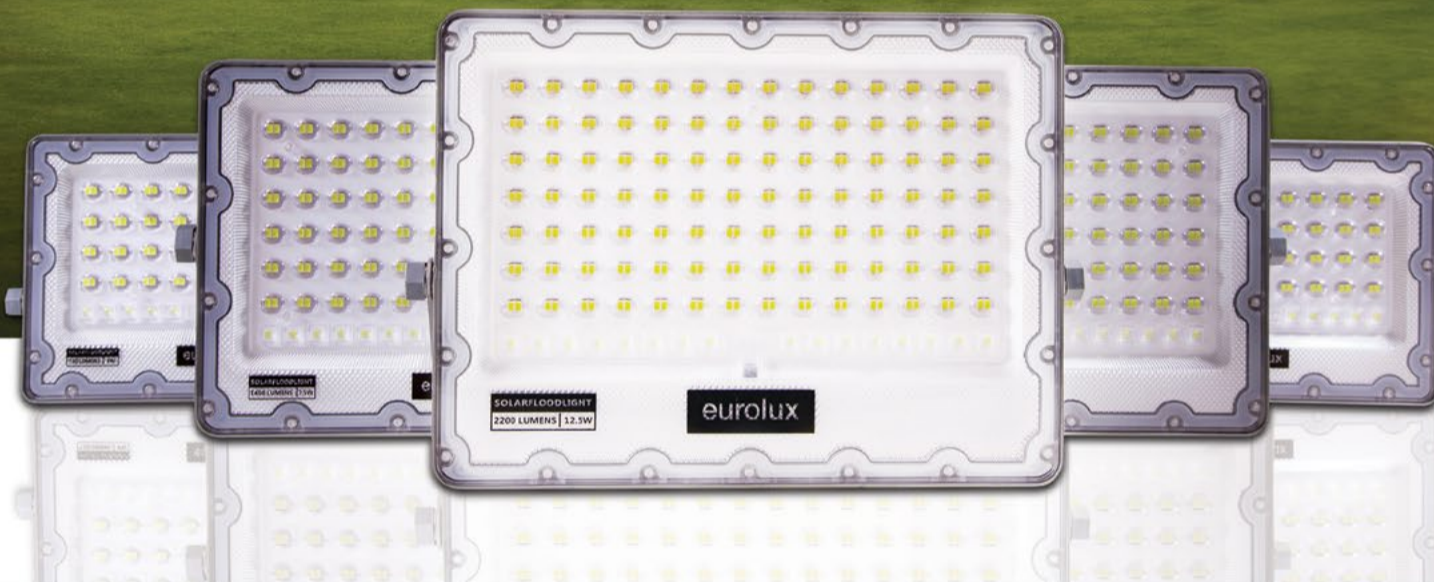


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Visit www.eurolux.co.za and draw inspiration from a world of fitting solutions.



When choosing an LED fitting, look for the 'lumens' rating, rather than the 'wattage' for a more accurate indication of the brightness you can expect.

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