

SIEMENS LAUNCHES ENTRY-LEVEL ELECTRICAL PRODUCT RANGE FOR LOCAL MARKET



By Ilana Koegelenberg

Siemens has unveiled SINOVA, a new range of low-voltage electrical products specifically designed for South Africa and other emerging markets. The range focuses on simplicity, reliability and affordability to help expand electricity access in the region.

Market-driven solution

The SINOVA launch was held at the DaVinci Hotel in Johannesburg on 22 January and was well-attended by industry stakeholders. The day included various presentations from the Siemens team as they explained the intention behind their new range and related distribution strategies.

This new range marks a significant milestone in Siemens' strategy to expand its low-voltage electrical products beyond the mining and industrial sectors into the utilities sector as well. Traditionally known for more complex systems, the SINOVA range now allows Siemens products to be used in projects of all sizes – in new markets previously untapped as well.

"In today's energy-dependent world, it's important to ensure that emerging market consumers are not left behind. This is why Siemens is making more advanced and user-friendly electrical systems and solutions available in Africa and other emerging markets around the world," said Kruben Bennie, country business unit head for Electrical Products at Siemens Sub-Saharan Africa.

According to Bennie, developing this custom product range has been a very long process, and he hailed the launch as a truly momentous occasion. "This is a very big day for us," he said at the event.

"The Power of Simplicity"

SINOVA simplifies electrical installations across three categories – electrical protection, final distribution and safety control. The product tagline reflects its core features, with Dennis Kristof (Siemens regional director of Business Development & Marketing for Electrical Products in the India, Asia & Africa region) explaining that it truly is all

about simplicity with SINOVA. "It's simple to select, simple to configure, and simple to use," he said during his opening address at the launch.

Simplicity wasn't the only focus for this range though. "When developing the SINOVA range, we looked at pricing and budget goals, ensuring a more affordable product for the market. The aim was where value meets versatility," Kristof added.

The SINOVA electrical products are designed for various applications, including industrial applications, buildings, infrastructure and utilities. Notably, this is the first product of its kind that Siemens is promoting into the residential market as well. "Crafted with Siemens' trusted quality, it ensures effortless operation and cost-effectiveness in electrical systems," said Bennie.

The product range offers electrical protection, control, switching and metering capabilities to simplify the work of electrical planners and consultants, contractors and installers, distributors, panel builders and original equipment manufacturers (OEMs). What sets it apart is that it does all this while being energy efficient, low-cost and able to reduce environmental impact. It helps industry professionals to streamline their processes and complete projects quicker.

Quality and compliance

Product portfolio consultant at Siemens, Zameer Thayab, emphasised that despite being positioned as an entry-level product, SINOVA maintains Siemens' commitment to quality and safety. "The product is reliable, safe and efficient. It has been tested to all local and international standards and has full local SABS (South African Bureau of Standards) certification."

Thayab noted that ensuring all the correct certifications was very important to Siemens, even if it meant the initial delay of the product launch. This dedicated approach demonstrates the company's commitment to quality standards and a deep understanding of the local market.

Distribution and stock availability

The distribution strategy for the SINOVA range will focus on growing existing partnerships while expanding into the wholesaler market. "The aim is not to derail existing partnerships but to build on this. We will maintain Siemens' footprint in the industrial sector and focus on expanding the infrastructure side too."

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SIEMENS

SINOVA - The Power of **Simplicity**





ABB: Enabling Africa's solar potential

As the global population continues to grow, energy demand is also rising. To meet this increasing demand, it is crucial to integrate renewable sources into the energy mix. Joyce Moganedi of ABB Energy Industries explores the role of solar power in building a more sustainable future with lower emissions.

According to Statista, the global solar power sector is expected to grow by 7.3% annually between 2024–2029. The study also

explains that among developing countries, Africa and the sub-Saharan region will see an exponential increase in energy demand in the coming years. With many households still in need of electricity, scaling up solar power projects using automation and digital solutions from partners like ABB can help bridge the gap.

However, balancing renewable power supply with end-user demand is challenging as the share of renewables grows. ABB

assists customers throughout the renewable power value chain, including consulting, generation, storage, transmission, monitoring, control, and optimisation.

Solar power and Africa

With evolution and technological innovation, the first photovoltaic (PV) or solar cell, which converts light energy to electricity, was invented in 1954.

Today, PV panels and concentrated solar power plants (CSP) are used in generating electricity as part of the clean energy transition. CSPs use mirrors or lenses to concentrate sunlight to heat a fluid that drives turbines, and solar home systems (SHS), thereby providing electricity to households.

With 53% of Africa's population still in need of electricity, according to a 2023 report by UN Trade and Development, tapping into the region's vast resources and opportunities in solar power will help secure its future. But using these resources requires investment in solar power projects and building infrastructure. According to the International Renewable Energy Agency, only 2% of global renewable energy investments went to Africa in the past two decades.

ABB has been supporting the solar power sector since the 1990s with automation,

electrification, and digitalisation solutions, exhibiting technology expertise in how best to harness, control and store solar energy and efficiently convert it into a reliable power source, ready for transfer into the local grid. How is ABB enabling the solar power projects in Africa?

Supporting the solar revolution

ABB's portfolio of products, systems, and solutions for the solar power industry is extensive and caters for industrial and home use. PV applications focus on delivering continuous operation, higher reliability, and return on investments.

In Africa, ABB has supported several solar power projects as the automation and electrical solutions provider. ABB has supplied state-of-the-art ABB Ability Symphony Plus SCADA automation platform, which is an open, flexible, and scalable platform that serves as a reliable and secure platform for solar applications.

"Solar power is a bright spot in Africa's energy landscape that promises to illuminate many more lives," ABB said. "And ABB's design, engineering and commissioning capabilities will help harness this untapped clean energy and secure the region's future."

Enquiries: <https://global.abb/>



How to tame lithium-ion battery fires

When a lithium-ion battery bursts into flames, reaching for the standard fire extinguisher might be your first instinct – but it could be a dangerous mistake. SafeQuip, a distributor of fire-related equipment, explains why these increasingly common battery fires demand specialised solutions.

Limitations of traditional fire extinguishers

Traditional fire extinguishers are designed to combat fires by removing one or more elements of the fire triangle: heat, oxygen, and fuel. They work well for typical fires involving materials like wood, paper, or flammable liquids, where the fire triangle principles apply. However, lithium-ion battery fires are a different beast altogether.

Here's why regular extinguishers can't quench these fires effectively:

- 1. Lack of appropriate agents:** Traditional fire extinguishers use agents like water, foam, or dry chemicals. These agents may not be suitable for lithium-ion battery fires because they don't address the unique challenges posed by the high-energy density of these batteries.

- 2. Inadequate cooling:** In a lithium-ion battery fire, simply cooling the flames with water isn't enough. While water can lower the temperature temporarily, the fire can reignite because it doesn't address the root cause – the internal reactions within the battery that sustain the fire.
- 3. Re-ignition risk:** Even if you manage to extinguish the flames with a traditional extinguisher temporarily, there's a significant risk of re-ignition. If the battery is still compromised and the thermal runaway isn't stopped, the fire can flare up again once the extinguishing agent dissipates.
- 4. Electrical conductivity:** Many traditional extinguishing agents are conductive, which means they can cause short circuits in electronic devices like lithium-ion batteries. This could potentially worsen the situation and make it more hazardous.

The solution

If traditional fire extinguishers aren't suitable for lithium-ion battery fires, what's the solution? Enter Lith-Ex fire extinguishers containing Aqueous Vermiculite Dispersion

(AVD). AVD is a cutting-edge fire extinguishing agent designed specifically to combat the unique challenges posed by lithium-ion battery fires. AVD is made from the naturally occurring mineral vermiculite combined with water. It is an effective agent that cools, encapsulates, prevents propagation, and extinguishes lithium-ion battery fires.

How to use Lith-Ex fire extinguishers

Here's a quick guide on how to use these extinguishers effectively:

- 1. Stay calm:** In the heat of the moment, keeping your cool is paramount. Take a deep breath and assess the situation.
- 2. Grab your Lith-Ex:** Ensure you have a Lith-Ex fire extinguisher on hand. These are specially designed to combat lithium-ion battery fires.
- 3. Pull the pin:** Hold the extinguisher upright and pull the safety pin to unlock it.
- 4. Aim low:** Always aim the nozzle at the base of the fire where the lithium-ion battery is burning. This is where you'll have the most impact.
- 5. Squeeze and cover:** The aim is to cover the entire battery as quickly as possible. This can be achieved by moving around the burning battery and making sure the complete battery surface is covered. The sweeping motion will allow AVD to form layers covering the battery. These layers will encapsulate the fire. Do not just aim at one spot but make sure to cover the total battery fire. Squeeze the handle to release the extinguishing agent and sweep it from side to side, covering the entire fire. Keep a safe distance and stay clear of any splashing.
- 6. Watch and wait:** After the fire is out, keep an eye on it to ensure it doesn't reignite. Stay safe and ready.

The SANS 1910–2022 approved Lith-Ex fire extinguisher range, from SafeQuip, carries NTA 8133:2021 (KIWA/P00055865) test approval, which proves its lithium-ion battery fire extinguishing capability.

Enquiries: www.safequip.co.za

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As Siemens has never been in infrastructure, partners will be crucial for getting this product to market," Bennie explained. With the Letters of Authorisation (LOAs) for the products now finalised, Siemens has committed to maintaining substantial local stock holdings of the entire SINOVA range, made possible by the products' smaller size and lower cost point.

Regional growth

While designed specifically for South Africa, the SINOVA range is also being introduced beyond our borders. The range will also be available in Kenya, Ghana, Tanzania, and other African countries, with successful launches already completed in India and Southeast Asia too.

Future expansion

While the current SINOVA range already offers comprehensive solutions for the local market, Siemens has confirmed that more products will be added based on market needs. This is just the beginning. "Launching this new range is a real turning point for Siemens South Africa," Bennie concluded.

Enquiries: lvswitchgear.za@siemens.com





All about the people



Ilana Koegelenberg

During Comtest's recent 20th birthday celebrations, a familiar truth resurfaced: the company's success was mainly built on the strength of its people. It's a message I've heard time and again when attending milestone events, and it's no coincidence.

It makes perfect sense. A company, a brand, a legacy – they're only as strong as

the team behind them. We sometimes get caught up in profits, clients, and countless other metrics, but it all comes back to people. Without a strong team, you might as well close your doors. They're the ones who shape your culture, the faces your customers trust, the force that defines your company's reputation.

At *Sparks*, we understand that people are the lifeblood of both this industry and our magazine. Without our community – without you – none of this would exist. That's why meeting the faces behind the brands has been such a highlight for me. Every launch event or celebration I'm invited to reveals just how much heart beats at the core of this industry.

You'll see this reflected in our pages as we share more stories about the people who shape our sector – their work, their passions, their journeys. After all, *Sparks* is about community. We're not just reporting on what's happening; we're celebrating who's making it happen and the stories behind their success.

Consider this your personal invitation to share your stories with us – whether you're planning company events or working on exciting projects. I'd love to hear from you (and yes, I promise I'm super nice!). Thank you to everyone who's already connected with me, either through email or LinkedIn. Your insights have been invaluable, and I'm



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eager to learn more.

Speaking of our incredible community, let me share some of the inspiring stories making waves in our industry. As mentioned, the Comtest Group celebrated 20 years of growth recently. A huge congrats to Barend and his team. (Read more on page 9.) Our cover story features Siemens, who also had a fantastic launch in Johannesburg, bringing the new SINOVA range to our shores and changing the game.

This edition also includes an in-depth feature section on Energy Measurement and Supply, as well as Tools of the Trade, and our usual Lighting feature – four pages long this month because there were simply too many interesting articles to leave any out. From lighting trends (on page 14) to the role of AI in lighting (on page 15) and so much more, check out the back of the magazine for all things lighting.

In other news, Central Support Systems (CSS) is celebrating three decades this year (page 5), ElectroMechanica (EM) recently introduced its 2025/26 export catalogue (page 8), and ACDC Dynamics has formed a partnership with Conlog to distribute their products locally (page 10). This and so much more in the March edition of *Sparks*.

Maybe next edition, we'll write about the people that matter to your business – after all, every company has people worth celebrating.

For now, I hope you enjoy this edition we've put together for you.

Happy reading!

Ilana Koegelenberg

sparks@crowns.co.za

Wilhelm du Plessis: meet Sparks's new publisher

By Ilana Koegelenberg

After a decade at the helm of Crown Publications and *Sparks Electrical News*, Karen Grant has



Wilhelm du Plessis

transitioned from her role as publisher to managing director, passing the publisher's torch to Wilhelm du Plessis. We sat down with Wilhelm to learn about his vision for the magazine and what makes *Sparks* an essential read.

Ilana Koegelenberg (IK): Tell us about your career and how you became publisher at Crown.

Wilhelm du Plessis (WDP): My career began in academia, where I earned my master's degree at 23 and lectured university students. Alongside my studies, I worked as a freelance writer until an opportunity at De Kat magazine prompted me to leave academia for publishing – a field I've remained in ever since.

My publishing journey has spanned customer, consumer and business-to-business sectors, with my Crown chapter beginning in 2009 as editor of *Construction World*. By 2017, I had taken on the role of deputy publisher whilst continuing to edit both *Modern Quarrying* and *Capital Equipment News*.

What keeps me here? B2B publishing represents the most authentic form of our craft, yet it increasingly calls for innovative approaches. Though distinctly different from customer and consumer publishing, B2B offers tremendous scope for innovation – particularly in recent years. I am committed to pursuing this innovation and delivering content that truly delights our targeted audience.

IK: The electrical sector in South Africa faces many unique challenges... What's your view on the role of trade media in supporting this industry?

WDP: The significance of trade media is profound. While some may fail to recognise its distinctive value, trade publications play a vital role in keeping their audience informed about the latest products and services, whilst showcasing industry achievements that inspire growth.

Crown's portfolio extends beyond the electrical sector to encompass mining, construction, capital equipment and manufacturing publications. These specialist media channels deliver value that social media simply cannot replicate. Our challenge at Crown lies in creating high-calibre publications for sectors under pressure, maintaining exceptional standards, and ultimately supporting these industries' contributions to South Africa's development.

IK: You've worked with many publications in many industries before, what is your view on Sparks? Why is this magazine, and this industry, so special?

WDP: *Sparks* is distinct from other magazines at Crown – not just because of its tabloid format. Its distinctive dual role sets it apart: whilst providing electrical contractors with comprehensive coverage of innovations and products, its unique selling proposition lies in serving as a forum for this predominantly owner-operated sector to celebrate its people and achievements. Indeed, *Sparks* fulfils both a vital social function within its community and the essential role of industry informer.

IK: Why do you think Sparks has existed for over four decades? How did we get this far?

WDP: *Sparks'* remarkable longevity stems from its unique physical format and its loyal readership – a testament to the dedication of past editors, designers and sales managers

who consistently delivered content that readers eagerly consumed, whether in print or online. Whilst trade magazines fundamentally serve as platforms for advertisers, *Sparks* has maintained strong commercial support throughout its evolution. Now, it continues to adapt as print, online, social media and events play increasingly integrated roles in reaching our audience.

IK: Why should people read Sparks or subscribe to our digital offering? What's in it for them?

WDP: Since you (Ilana) took the helm as editor of *Sparks* late last year, you've strengthened the magazine's core mission – delivering targeted industry information whilst leveraging its position as a specialist publication. *Sparks* maintains its unique personal touch, reflecting an industry where many businesses are owner-operated. This personal connection creates genuine pride when companies see themselves featured, whether readers access these stories in print or online.

IK: How do you think the nature of trade publications is changing locally, and do you think print still has a role to play in the future?

WDP: The boundaries between customer, consumer and trade publications have blurred, with trade media now incorporating elements from both spheres. It's an exciting time as our industry navigates fresh demands – not only to inform but to create content that is visually compelling, innovative and captivating in an era of endless choices.

Beyond the physical publication, my vision for *Sparks* – and indeed all Crown publications – is to develop comprehensive media brands. These would encompass print and digital magazines, websites, newsletters, events, webinars and innovative advertising opportunities that align with each brand's identity.

Enquiries: sparks@crowns.co.za



Sparks' distinctive dual role sets it apart: whilst providing electrical contractors with comprehensive coverage of innovations and products, its unique selling proposition lies in serving as a forum for this predominantly owner-operated sector to celebrate its people and achievements.

- Wilhelm du Plessis, Crown Publishing



Upskilled workers add value to maintenance teams

Maintenance costs, traditionally a grudge expense for businesses, can be kept to a minimum by

ensuring that maintenance crews are adequately trained in key aspects of the condition monitoring process, according

to Steven Lumley, technical manager at WearCheck.

"The rate at which technology is advancing in many aspects of condition monitoring dictates that regular technical training is necessary to ensure staff members stay abreast of the latest techniques, and that they understand and implement the most efficient processes," says Lumley.

Lumley, who oversees the company's extensive technical training schedule for customers, outlines the available options. WearCheck offers more than 15 courses, which cover a wide range of topics – from general oil analysis to thermography, transformer maintenance, and many other reliability solutions services. The courses are presented by experienced WearCheck experts in each field, and most courses award valuable continuing professional development (CPD) points to delegates.

"WearCheck has run oil analysis courses for more than 20 years, and has been accredited to run Mobius courses since 2015. Our training material is regularly refined to ensure that the content is relevant, useful, and accurate," says Lumley.

"We embrace innovation and are constantly implementing new technologies – therefore, the more informed our clients are about the upgraded analysis systems, the better their return on investment into a condition monitoring programme."

The courses are targeted at different levels of maintenance crew members, from introductory level right up to highly scientific and technical.

WearCheck's 2025 customer training courses include oil analysis courses and Mobius courses.

Enquiries: www.wearcheck.co.za/training



Free registration for Solar & Storage Live Africa now open



The event aims to connect the industry's decision-makers, innovators, and game-changers to drive Africa's clean energy future. It will take place from 25-27 March at the NASREC Expo Centre in Johannesburg.

"Solar & Storage Live Africa is Africa's largest renewable energy exhibition that celebrates the technologies at the forefront of the transition to a greener, smarter, more decentralised energy system," according to organisers Terrapinn.

The event is all about the big ideas,

new technologies and market disruptions that are enabling Africa's energy transition and bringing solar energy generation, battery, storage solutions and clean energy innovations to the forefront.

"Like every industry, energy is changing – more digital in the future of energy, a global focus on renewable energy generation, batteries are the new gold; the race for storage capacity is thriving and now, more than ever, ever providing reliable, sustainable and affordable power has become the core focus," said

Terrapinn. "Our event is a multi-branded vibrant exhibition, intentionally designed

to seamlessly represent the convergence between conventional generation, lower-carbon innovations and renewable energy solutions.

During the free-to-attend event, 20,000 attendees, 650 exhibitors and more than 200 speakers from 40 African countries are expected.

The event includes a global three-day conference with speakers covering the latest trends, market disruptors and technologies shaping the energy sector. The conference will comprise four tracks packed with the latest and most innovative content – from keynote presentations, practical case studies and country spotlights to interactive discussions and workshops.

Enquiries: www.terrapinn.com/exhibition/solar-show-africa

Solar & Storage Live Africa is Africa's largest renewable energy exhibition that celebrates the technologies at the forefront of the transition to a greener, smarter, more decentralised energy system.

First private higher education institution recognised by ECSA

The Independent Institute of Education (The IIE), the country's leading private higher education institution and a division of JSE-listed ADVTECH, has received full accreditation from the Engineering

Council of South Africa (ECSA) – the first private higher education provider in the country to be recognised in this manner by the industry authority.

All engineering degrees in South Africa

must be offered with the approval of the ECSA. The IIE has been offering ECSA-endorsed Bachelor of Engineering (B.Eng) degrees since 2018. During the initial development stages and in the first years of offering these degrees, ECSA conducted various site visits and reviews of The IIE's B.Eng Degrees, to ensure that the qualifications adhere to best practice and to national and international standards for Engineering.

Full accreditation has now been awarded for The IIE's B.Eng Degrees in Electrical and Electronic Engineering and in Mechanical Engineering.

"This milestone is truly significant as The IIE becomes the first private higher education institution in Africa to receive full accreditation for engineering degrees under the international Washington Accord," said Louise Wiseman, managing director of The

IIE's Varsity College, Vega, and IIE MSA.

Private higher education institutions in South Africa may not, at present, call themselves private universities due to historic criteria. However, the Department of Higher Education and Training is in the process of finalising criteria for institutions with the aim of ensuring that qualifying private higher education institutions may rightly be recognised as private universities (as opposed to state-funded public universities).

"This latest recognition reaffirms that The IIE is uniquely positioned in the private sector to provide the highest quality of academic excellence, while ensuring our qualifications and students are deservedly recognised – in line with their peers in public universities – in the industry and the workplace," she says.

Enquiries: www.iie.ac.za

This milestone is truly significant as The IIE becomes the first private higher education institution in Africa to receive full accreditation for engineering degrees under the international Washington Accord.



Central Support Systems marks three decades of growth

By Ilana Koegelenberg

Central Support Systems (CSS) is preparing to celebrate a significant milestone as it approaches its 30th anniversary in April 2026, marked by the recent opening of its first Cape Town branch.

From local to regional player

Established in 1996 in Johannesburg, CSS emerged from the collaboration of experienced professionals in the cable management market. The company has since evolved from its modest beginnings to establish a significant presence that now extends from South Africa through to Zambia. This expansion enables CSS to provide comprehensive support to clients across the region through its growing network of branches and partners.

Manufacturing investment

Recognising the importance of supply chain control and product quality, CSS made a strategic decision to establish its own manufacturing facility in South Africa. This development has proven transformative, with the company now operating from over 20,000 m² of space dedicated to both its distribution and manufacturing operations. This infrastructure investment has enhanced CSS's ability to manage product development and supply chain efficiency.

Quality and standards

In line with its commitment to excellence, CSS has achieved ISO:9001 certification for its Johannesburg head office and main distribution centre. This certification validates the company's dedication to maintaining superior standards in both its products and operational procedures, reflecting its focus on quality control across all aspects of the business.

Customer-centric approach

Since its inception, CSS has maintained a focus on customer relationships, which the company takes incredibly seriously. The company has built upon the experience of its staff, while developing new talent and expertise within the organisation.

"Central's strength will always lie in its people," said Kevin Kohler, CEO of CSS. "From our superior work ethic to our customer focus and professionalism, our ultimate goal is to have customers satisfied by all dealings with any staff member. We hope that customers think of us as an integral arm of their own business, providing superior products and services to achieve joint success."

Future focus

As CSS approaches its three-decade milestone, the company continues demonstrating its commitment to staying current with industry developments in

today's competitive environment. The recent expansion into Cape Town reinforces its strategy of maintaining a strong physical presence in key markets while ensuring comprehensive product and service delivery across Southern Africa.

Enquiries: <https://css.co.za/>

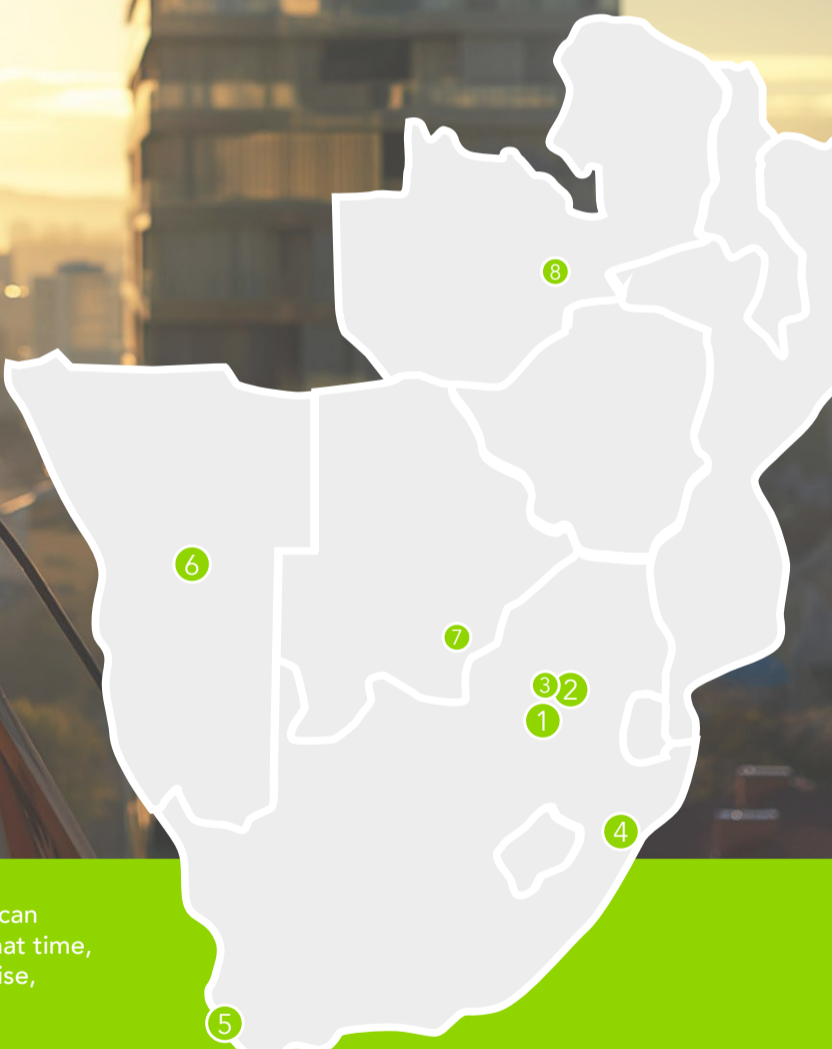


From our superior work ethic to our customer focus and professionalism, our ultimate goal is to have customers satisfied by all dealings with any staff member.

- Central Support Systems



Using our growing footprint to build yours



Central Support Systems has been serving the South African electrical cable management industry since 1996. Over that time, we have grown from strength to strength, both in expertise, and in size.

With the recent opening of our Cape Town branch, we're excited to offer our customers a network of branches and trading partners throughout Southern Africa. This growing footprint means we're big enough to provide our customers with a reliable foundation for bigger projects. In addition to this, we place immense value on quality management, both in terms of our products and procedures - emphasised by our ISO:9001 certification, which we achieved in 2023.

However, while we've grown substantially, our dedication to superior customer service and support has not changed. This means that we really have all your bases covered when it comes to being the cable and reticulation management partner that you can truly trust.

Get in touch to find out how we can support you

011 492 2314 | sales@css.co.za





Fuchs takes data centre cooling to the next level

As the global data centre industry experiences unprecedented growth, the challenge of effective cooling becomes even more urgent. Traditional air-cooling systems, reliant on space, energy, and water, are no longer sustainable for hyperscale and colocation data centres. That's where immersion cooling comes in.

Immersion cooling is a groundbreaking solution for managing the escalating cooling demands of today's powerful processors and servers, according to Jarryd Tate, technical application engineer at Fuchs Lubricants South Africa – a provider of innovative cooling solutions tailored to meet the needs of the digital revolution.

Immersion cooling as an option

Liquid cooling, long the go-to solution for high-performance computing centres, is now becoming a mainstream solution for data centres. Among its forms, immersion cooling stands out as the most capable of handling future challenges. This technology submerges hardware components in specially engineered fluids, delivering unparalleled efficiency.

Single-phase immersion coolants are gaining traction due to their zero ozone

depletion and global warming potential, alongside simpler designs that reduce operational complexity. Immersion cooling systems significantly lower energy consumption, reduce water usage, and require less maintenance, leading to a decrease in overall operating expenses. In addition, these systems improve uptime ratings, processor performance, server density, and overall power-usage effectiveness.

Beyond efficiency gains, immersion cooling offers considerable environmental benefits. It lowers a facility's carbon footprint and energy usage while enabling waste heat capture and reuse. The design advantages are equally compelling: facilities can eliminate costly chillers, air handlers, and rack fans while minimising concerns about regional climate, dust, and air pollution. "Immersion cooling not only addresses the operational challenges of traditional systems but also aligns with global sustainability goals, making it an essential innovation for future-ready data centres," stresses Tate.

Despite its advantages, some operators hesitate to adopt immersion cooling due to concerns about handling large volumes of

fluids and potential disposal requirements. Fuchs addresses these challenges with its modular services for immersion coolant management. Leveraging decades of experience in chemical process management, Fuchs provides tailored solutions covering the full lifecycle of immersion coolants, from initial implementation to ongoing maintenance. This ensures that the benefits of immersion cooling are sustained over time.

Fuchs' data centre solutions

Fuchs has been a trusted supplier of solutions for information technology and telecommunications for decades. Its advanced Renolin Fluids for Electronic Component Cooling (FECC) product line, formulated with synthetic base oils and

powerful additives, is specifically designed to meet the needs of today's data centres. Renolin FECC products deliver superior cooling performance, reliable dielectric properties, and high breakdown voltage, with zero global warming and ozone depletion potential. The range offers extended lifespans thanks to its thermal and oxidation stability, alongside compatibility with common electronic components.

Beyond this line, Fuchs also provides a wide range of products designed specifically for data centres and crypto-mining facilities, including single-phase immersion coolants, direct-liquid-cooling fluids, electronics and systems cleaners, electrical connector greases, and refraction index matching optical gels.

Enquiries: www.fuchs.com/za



Unlocking local business success with Software-Defined Networking

South African businesses increasingly recognise the importance of leveraging advanced IT solutions to enhance their operational efficiency and competitiveness. Software-Defined Networking (SDN) and Software-Defined Wide Area Networking (SD-WAN) have emerged as transformative technologies that can significantly impact business success.

Amrithesh Anand, vice president and managing director – Technology Services Group at In2IT Technologies, explores this topic further.

The shift towards SDN and SD-WAN

The shift represents a paradigm change in how networks are designed and managed. Traditional networking relies heavily on hardware-based solutions, which can be inflexible and costly. In contrast, SDN abstracts the network control from the hardware, allowing for centralised

management and greater agility.

This flexibility is particularly beneficial for South African By adopting SDN, companies can optimise their network resources, reduce operational costs, and improve service delivery, enhancing customer satisfaction and loyalty.

SD-WAN takes this further by enabling organisations to connect multiple locations over a wide area network using a combination of transport services. This technology provides enhanced bandwidth and reliability, improves security and simplifies management. For local businesses, particularly those with geographically-dispersed operations, SD-WAN offers a compelling solution to overcome connectivity challenges and ensure seamless communication across all sites.

Expert third-party IT companies

Successfully implementing SDN and SD-WAN requires expertise and strategic planning. Many businesses may lack the in-house capabilities to deploy and manage these technologies effectively. This is where expert third-party IT companies come into play.

Financial considerations

While the initial investment for adopting SDN and SD-WAN technologies may seem significant, the long-term cost savings associated with these solutions can be substantial. Businesses can lower their operational costs by reducing their reliance on expensive hardware and streamlining network management.

Embracing these innovations will be crucial for businesses aiming to thrive in an increasingly digital landscape.

Enquiries: www.in2ittech.com



The critical role of sensors in BMS

Today's Building Management Systems (BMS) cannot function properly without sensors. And like our senses, they're an integral part of operations that run silently in the background, almost taken for granted. Mark Freeman of Schneider Electric looks at the importance of sensors in modern buildings.

Every modern building, from data centres and hospitals to commercial and residential spaces, relies heavily on an extensive network of sensors to monitor and regulate conditions. It is the intelligence that feeds into the BMS.

If sensors start failing, the BMS can become blind, in a manner of speaking. For example, the failure of the temperature sensor in an HVAC system can disrupt a significant part of the building's operations, leading to increased energy costs and reduced occupant comfort.

The eyes, ears, smell and touch of buildings

Today's BMSs rely on an intricate network of sensors to gather real-time data on various environmental conditions. These sensors are strategically placed in key areas, including plant rooms, ducts, and living spaces, to continuously monitor critical parameters such as temperature, humidity, air quality, and particulate matter. This data is then processed by AI-driven

analytics, allowing facility managers to make informed decisions that enhance building performance and efficiency.

Temperature and humidity

Few things ruffle our feathers as much as a building environment that is too cold, too hot, or too humid. And it's not only the warm-blooded species that are impacted; equipment performance and energy efficiency can also take some serious strain.

Here, sensors ensure that temperature and humidity are precisely managed in all buildings, but more so in critical facilities like hospitals and data centres. These sensors enable HVAC systems to operate efficiently, reducing energy wastage while maintaining an ideal indoor climate for both man and machine.

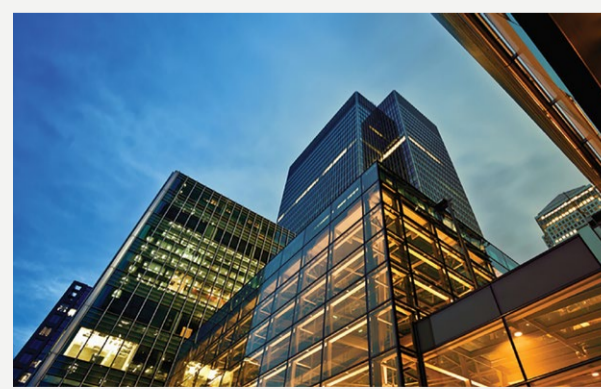
Indoor air quality is a fundamental aspect of occupant health and comfort. Poor air quality can lead to health issues such as respiratory problems, fatigue, and decreased productivity. The recent pandemic is a perfect example of how important proper air quality is.

Smart air quality sensors monitor factors like CO₂ levels, volatile organic compounds (VOCs), and particulate matter, ensuring optimal air quality in workplaces, hospitals, schools, and industrial facilities. By integrating these sensors into a BMS,

HVAC systems can automatically be adjusted to maintain fresh, clean air while again minimising energy consumption.

Schneider Electric offers a compelling range of smart sensors designed to meet the needs of various building environments – from plant room air quality sensors to particulate matter sensors.

Enquiries: www.se.com/za/en/





New drill-powered wire stripper built for durability and versatility



measuring 142 x 88 x 35 mm and weighing 300 g.

This drill attachment system represents a significant step forward from traditional hand-operated wire strippers, offering improved efficiency and

consistency in wire preparation tasks. The tool's design prioritises user comfort while maintaining professional-grade performance standards.

Vermont Sales is currently distributing this Tork Craft wire stripper set through local outlets, making it readily accessible nationwide.

Enquiries: www.vermontsales.co.za



By Ilana Koegelenberg

Tork Craft's latest offering through Vermont Sales brings a professional-grade solution to insulation wire stripping operations with their new three-piece wire stripper drill attachment set. This innovative tool set is specifically designed for anyone working with solid and coarse strand wire installations.

The set features three specialised wire strippers, colour-coded for easy identification – blue for 2.5 mm², gold for 4 mm², and red for 6 mm² applications. Each unit comes equipped with precision-engineered carbide-tipped blades positioned at 90 degrees, significantly reducing the risk of damaging the internal wire during the stripping process.

Built for durability and versatility, the wire strippers feature a robust construction of zinc and aluminium alloy. The universal 1/4 inch (6.35 mm) hex shank ensures compatibility with standard drills and impact drivers, making it a versatile addition to any contractor's toolkit. An ejection hole is also included to remove excess insulation.

One of the key advantages of this system is its adjustable stripping length capability, ranging from 10 mm to 35 mm, providing flexibility for various installation requirements. The tool is optimised for use with common electrical applications including house wiring and general-purpose wiring.

For optimal performance, operators should use the tool with a variable-speed drill at speeds exceeding 400 RPM in the forward direction. While the tool is specifically designed for solid copper wire, it also performs effectively on coarse stranded wires such as flat twin and general-purpose wire, though users should note that cable tyre and fine stranded wires are not recommended.

The target users for this professional-grade tool include electricians, electrical manufacturing professionals, and serious do-it-yourself (DIY) enthusiasts. Each set comes complete with three wire strippers and an adapter, packaged in a compact unit



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Three-D Agencies introduces battery-powered crimping tool

By Ilana Koegelenberg

Three-D Agencies has introduced a new battery-powered hydraulic crimping tool designed for professional electrical applications. This compact tool combines advanced features with versatile functionality for demanding crimping operations.

Technical capabilities

The crimping tool delivers 6 tonnes of crimping force and accommodates copper conductors up to 240 mm² and aluminium up to 185 mm². With a 30 mm jaw opening and capability to handle copper/aluminium cables up to 25 mm diameter, the tool is suited for a wide range of electrical termination tasks.

Innovative design features

A standout feature of the crimping tool is its 360-degree rotating head with flip-top design, providing easy access to fittings in confined spaces. The tool includes automatic pressure relief and reset functions for efficient operation. Dual LED

work lights enhance visibility in low-light conditions, while an OLED display powered by an intelligent computer chip provides clear operational information.

Power and portability

Powered by an 18 V high-capacity lithium battery with power level display, this crimping tool combines performance with mobility. Weighing just 3.3 kg, the tool is engineered for ease of use while maintaining substantial crimping capability. A fast charger is included to minimise downtime. Plus two 2 AH 18 V batteries.

Practical construction

The tool comes housed in a durable PP plastic case that offers protection against pressure and impact. The compact dimensions of 59 x 51 x 14 cm make it practical for both storage and transport. The package includes adaptor dies suitable for Cu 16–240 mm² conductors, with UCACSR and UC40 cutting blade options.

Enquiries: www.three-d.co.za



EM Launches export catalogue across the SADC region

ElectroMechanica (EM) recently introduced its 2025/26 export catalogue, showcasing an expanded range of electrical and automation solutions specifically designed for professionals in the Southern African Development Community (SADC) regions.

The catalogue highlights EM's focus on innovation, reliability, and efficiency, with products tailored to meet the evolving needs of the Southern African market. This release underscores EM's commitment to delivering high-quality solutions and maintaining its position as a trusted industry leader.

Bringing innovation to export customers

EM continues to grow in Southern Africa, supporting wholesalers, panel builders, contractors, and system integrators with a seamless supply chain and access to over 11,500 products.

To mark the launch of its latest catalogue, EM hosted events in Botswana, Zimbabwe, and Namibia with over 150 key customers in attendance. These events showcased EM's expanding product portfolio and reinforced its commitment to business growth, industry collaboration, and delivering solutions for the local market.

What's new in the 2025/26 catalogue?

- **Expanded power distribution solutions:** Advanced protection and control components to meet your needs.
- **New automation and control offerings:** Designed to boost system efficiency and performance.
- **Innovative renewable energy products:** Supporting sustainable and eco-friendly power solutions.
- **Interactive features:** Scan QR codes for product demos and technical resources.

The new catalogue is designed to be an essential resource for industry professionals, offering detailed specifications, practical application insights, and easy access to technical support.

Driving growth and industry excellence

"With our growing presence across Southern Africa, including Botswana, Zimbabwe, and Namibia, we are committed to providing our partners with not only superior products, but also the support and expertise essential for their success," says John Goncalves, regional director at EM.

With the 2025/26 catalogue now available, EM remains committed to empowering businesses across Southern Africa by delivering the right tools, expert support, and efficient supply chain solutions to help drive their success.

Enquiries: www.em.co.za



RS PRO launches ultimate range for design and repair



Design and repair are fundamental aspects of any industry, often closely intertwined. Whether adapting existing systems or maintaining essential equipment, these processes play a crucial role in ensuring efficiency and longevity.

The launch of the new RS PRO Design & Repair range caters to a wide array of industries, including discrete and process manufacturing and facilities management. This expansion reinforces RS PRO's commitment to delivering tailored solutions that address the specific needs of each sector.

With an extensive selection of products, the RS PRO range ensures precision, durability, and reliability in both design and repair applications. This latest portfolio expansion introduces over 1,900 new products across more than 29 technologies, providing customers with an even broader selection at competitive prices.

Manufacturing plants often require modifications due to evolving product demands. Whether upgrading production lines, redesigning components, or integrating new solutions, design plays a vital role in maintaining operational

efficiency. Similarly, repair is essential to minimise downtime. Every component, from the smallest fuse to the largest system, eventually requires maintenance.

Design and repair frequently go hand in hand. A failed component can present an opportunity for improvement, allowing for redesigns that enhance performance and longevity. This synergy is key to optimise industrial processes and ensure seamless operations.

The RS PRO range offers a one-stop solution for design and repair needs. From power management and consumables to testing instruments; fasteners; small electronic components (capacitors, fuses, inductors, resistors, fans); cables; connectors; tools; and PPE, RS PRO provides a comprehensive selection to support every stage of the product lifecycle.

"In an ever-evolving industrial landscape, RS PRO remains committed to quality and innovation, offering customers reliable, high-performance solutions that meet both design and compliance requirements," the company said.

Enquiries: <https://za.rs-online.com/>



Comtest celebrates 20 years of growth

By Ilana Koegelenberg

The Comtest Group of Companies recently celebrated its 20th anniversary, marking two decades of growth and innovation in Southern Africa's test and measurement industry. The company, which began as Fluke's local distributor, has evolved into a leading provider of test and measurement solutions, communications, equipment, solutions and specialised systems across the region.

Growing its brands

The company's journey began in 2005 when Comtest was appointed Fluke's master distributor for Africa. Since then, it has expanded its portfolio significantly, forging alliances with leading international companies including Beha-Amprobe, BK Precision, Fluke, Fluke Calibration, IET Labs, Franklin, Meriam, Microsemi, Midtronics, Pico Technologies, and Radian Research.

A significant milestone came in November 2010 when Comtest acquired Instrotech (established 1981), a supplier of high-quality process control instrumentation and industrial electronics and its sister company Calog Instruments (established 1989), the manufacturing arm of Instrotech. Instrotech, known for producing weighing electronics, signal conditioners, process calibrators, and digital display units, maintains worldwide sales and distribution rights for respected brands – including Elis, Keller, Kobold, LR-Cal LTR, Michell Instruments, Monitran, Optris, Siko, Scancon, Selet, Semnix, Sensor Tech, and Vishay VPG Transducers.

Celebrating 20 years

To commemorate this significant milestone, Comtest hosted a celebratory event at its Johannesburg offices on 31 January, drawing a packed room of industry partners, founding shareholders, team members, and media.

During the festivities, Barend Niemand, Comtest Group CEO, reflected on the

company's journey, sharing key milestones and turning points.

"It's been a wonderfully exciting ride from the start!" said Niemand. "I can hardly believe we are in our 20th year – 20 years of innovation, hard work and achievement. The Comtest Team's dedication and perseverance has resulted in growth and success. Above all, our commitment to quality and customer satisfaction has brought us to this impressive milestone."

Niemand attributes the company's success to its collaborative approach: "My management style is 'open door' and participative, where staff are included in decision-making, and their input and ideas are encouraged. Comtest people are encouraged to self-manage and foster teamwork."

He thanked each and every member of staff for their contribution to Comtest's success. "These innovative people have continuously reinvented themselves to develop new strategies to meet the challenges of ever-changing markets," Niemand said.

He also highlighted the executive team in his speech, thanking them for their continued support and commitment. The team includes Jannie Dirks, sales director; Eduard Arnold, financial director; Pieter Deysel, technical director; and Hugh du Plessis, R&D director.

From humble beginnings

At the event, founding shareholders in attendance shared their perspective on the company's growth. "We started with nothing and look at where we are now – a mature company that's well-positioned to take things to the next level," said John Wilson. Hilton Preston added, "The future looks bright for Comtest; we believe in the company's future."

Financial director, Eduard Arnold praised Niemand's leadership during the celebrations: "What a privilege to be part of a business like this." He emphasised the importance of the team, stating, "A business



From left: founding shareholder Peter Verwer; North Star's Mike Wietzoorek; Comtest Group CEO Barend Niemand; Comtest technical sales support Gareth Smith; Comtest Group technical director Eduard Arnold; and founding shareholder Hilton Preston.



is nothing without its people, so thank you all for your hard work."

A bright future

Looking ahead, Comtest's vision includes expanding its manufactured range and acquiring new companies that align with its core business focus. "We want to be the market leader and we always try to stay one step ahead," said Niemand. "We want to build on the past for a successful future."



For Comtest, the future holds exciting promise as it continues to trade actively throughout Southern Africa, with an eye on generating more export sales to Europe and beyond.

As the event concluded with the cutting of the birthday cake, Niemand expressed his optimism: "I'm looking forward to the next 20 years of growth."

Enquiries: <https://comtest.co.za>

The Prepaid Team: transforming utility management with expert prepaid metering solutions

In the world of property management, one of the biggest challenges landlords and managing agents face is ensuring efficient, cost-effective utility management. From inconsistent service to complex tariff structures and unresponsive support teams, utility management can become a frustrating experience.

But what if there were a way to simplify it all – seamlessly, efficiently, and with dedicated personal support? That's where The Prepaid Team (TPT) comes in.

TPT doesn't just provide prepaid meters for electricity and water – they also deliver a full-scale utility management solution that prioritises convenience and maximises efficiency. "Our approach is simple: if your meter doesn't vend, you don't make money, and neither do we," explains Jaco Craze, sales and marketing manager at The Prepaid Team. "That's why we work tirelessly to ensure that our systems run smoothly, and our clients experience hassle-free revenue collection."

The TPT difference

How does TPT fill in the gaps left by other providers?

- **Personalised service:** Unlike many competitors, TPT offers in-person consultations, site visits, and hands-on support – because business relationships matter.
- **Dedicated account managers:** They ensure that large portfolio clients have direct access to a knowledgeable point of contact, so queries and concerns are resolved swiftly.

- **24/7 support and fast turnarounds:** From after-hours support to rapid service turnarounds, TPT keeps your utility management on track.
- **Direct meter sourcing:** TPT cuts out middlemen by sourcing meters directly from manufacturers, ensuring quality, reliability, and competitive pricing.
- **Optimised tariff and cost management:** Say goodbye to inaccurate tariff settings – TPT's expert team ensures that all rates are correctly structured for seamless revenue recovery.

Seamless smart solutions for end-users

Prepaid meters aren't just about convenience for property owners – they also empower tenants to take control of their consumption, explains Craze. "Our smart metering solutions allow end-users to track real-time usage with our smart meters; save up to 4% on every transaction by purchasing tokens through our app; and monitor transaction history to manage monthly budgets better."

With more than 20 years industry experience, TPT has worked with leading property management companies who have seen the benefits of their services firsthand. "Our commitment is simple: we provide more than just meters – we provide peace of mind," says Craze. "The Prepaid Team is ready to optimise your utility management so you can focus on what truly matters."

Enquiries: info@theprepaidteam.co.za



Revolutionising energy management: ACDC Dynamics and Conlog partnership sets new industry standards

In an era where efficient energy management has become paramount due to increasing tariff hikes and intermittent power loss, the strategic partnership between ACDC Dynamics and Conlog represents a significant milestone in South Africa's electrical metering landscape. As the official distributor of Conlog's premium and comprehensive metering solutions,

ACDC Dynamics is positioned at the forefront of smart energy management, offering cutting-edge technology backed by decades of expertise.

Conlog's journey spans over half a century, during which they have established themselves as pioneers in smart metering technology. Their achievement as South Africa's sole manufacturer of electricity

metering carries substantial weight in the domestic market, while their expanding footprint across more than 50 countries demonstrates their global competitiveness. This international recognition, combined with local manufacturing capabilities, presents a compelling proposition for businesses and property developers seeking reliable metering solutions.

The significance of this partnership extends beyond mere product distribution. ACDC Dynamics has developed a comprehensive support ecosystem that ensures clients receive maximum value from their Conlog meter investments. "Our dedicated technical support team stands ready to address any challenges, providing rapid response times and expert solutions that minimise downtime and maximise operational efficiency," said ACDC Dynamics.

What sets Conlog meters apart in today's competitive market is Conlog's unwavering commitment to quality and compliance. Every meter distributed through ACDC Dynamics adheres to stringent STS-certification requirements and industry regulations. This commitment to standards ensures that clients can deploy these solutions with complete confidence, knowing they meet all legal and technical requirements for both domestic and commercial applications.

Property developers, landlords, and homeowners' associations face increasing pressure to optimise energy consumption

and maintain accurate billing systems. The Conlog range, available through ACDC Dynamics, directly addresses these challenges with solutions that combine accuracy, reliability, and smart management capabilities. The systems offer comprehensive energy monitoring features, enabling property managers to implement more effective energy management strategies while ensuring fair and transparent billing practices.

Looking ahead, the partnership between ACDC Dynamics and Conlog is poised to play a crucial role in South Africa's energy management future. As the country grapples with energy-related challenges, the availability of sophisticated metering solutions becomes increasingly important. Through this collaboration, businesses and property managers gain access to world-class technology that's supported by local expertise and backed by international standards.

For organisations seeking to upgrade their electrical metering systems or implement new solutions, ACDC Dynamics offers a compelling proposition: internationally recognised technology, local support, and the assurance of dealing with South Africa's leading metering experts.

"Our dedicated technical support team stands ready to address any challenges, providing rapid response times and expert solutions that minimise downtime and maximise operational efficiency," ACDC Dynamics said, "Powering your world, powering your future."

Enquiries: +27 (0)10 202 3300



Solar sector pushes for tax incentives as residential installations decline

South African Photovoltaic Industry Association (SAPVIA) made a presentation to the parliament's Portfolio Committee on Electricity and Energy about the slowdown in solar PV installations recorded in the residential space since the suspension of loadshedding.

"As an industry body that speaks for its members, it was important for us to share these updates with the committee. We raised concern about the low compliance and registration rates as many systems connected to distribution networks remain unregistered, with non-compliance prevalent in the residential market. There is an inconsistent installation quality with a large variation in system installation quality and electrical safety across installation industry and municipalities.

"By our estimates, there has been a 60–80% reduction in project volumes in the residential market segment from 2023 to 2024, attributed to the reduced demand following the suspension of loadshedding," said Dr Rethabile Melamu, CEO of SAPVIA.

There were also very specific and key interventions that SAPVIA lobbied for in their presentation to the committee.

"We called for solar investment incentives that offer tax benefits and grants for installations, specifically targeting middle-income households. We believe a national SSEG [Small-Scale Embedded Generation] framework will help standardise system registration and compliance across municipalities, and a national registration portal could help streamline this process.

"A national solar PV registration online portal and database would streamline and

enable registration of all solar PV systems, especially in municipalities lacking capacity to develop internal systems. A similar project in India has shown what could be achieved through such an online portal.

"We also support and welcome an update to the National Installation Standard (SANS 10142-1). The SABS [South African Bureau of Standards] is aiming for an updated version by the end of 2024, which would clarify the requirements for grid-connected solar PV and BESS [Battery Energy Storage Systems] and improve compliance," said Melamu.

Another issue raised by SAPVIA was the 10% import duty and rebate that was introduced in July 2024.

"We expressed our disappointment with the lack of consultation prior to its introduction. The sector was not prepared, and it appears that ITAC was equally unprepared as five months since the introduction, there are still no clear guidelines for the rebate permits process. The rebate permits are issued per shipment, which is not ideal and causes some uncertainty amongst members and delays in project execution," said Melamu.

"Nonetheless, we are engaging ITAC on the matter."

"SAPVIA has had several positive engagements with the International Trade Administration Commission since the introduction of the rebate, including online meetings and information-sharing sessions. ITAC has committed to issuing import permits per consignment until the end of January 2025, until a reliable process has been finalised. Also, the current pipeline

of projects far outstrips the current local assembly capacity, which is estimated at less than 15%," said Melamu.

SAPVIA acknowledges the government's desire to protect the solar PV manufacturing capability and to expand it in the medium to long term in line with the ideals of the South African Renewable Energy Masterplan. This, however, should be focused on areas of the value chain where SA already has capabilities and capacity, as the establishment, investment, and construction of factories have long lead times.

SAPVIA closely monitors the solar PV market stakeholders' response to the import

duty and rebate.

"Solar PV has significant potential to solve South Africa's energy trilemma, provided regulatory and policy barriers are addressed. Furthermore, solar PV can supply local manufacturers across the manufacturing economy with cheap, clean, and reliable energy that simultaneously keeps them globally competitive while also protecting local manufacturing jobs amidst the introduction of global carbon border tax mechanisms.

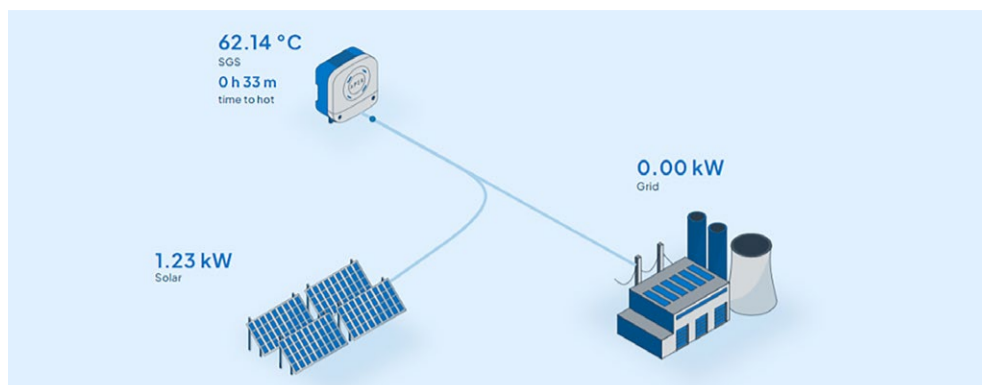
"Let us work together to create a robust, sustainable solar PV ecosystem that secures our energy independence and meets environmental commitments," Melamu concluded.

Enquiries: <https://sapvia.co.za/>





Transforming solar water heating in South Africa



By: Ilana Koegelenberg

In an era where energy efficiency and grid independence are becoming increasingly critical, South African technology company Rubicon has, through its technology development brand Apex, developed a groundbreaking solution for water heating that's transforming the renewable energy landscape.

"This solution is innovative because it intelligently optimises solar PV energy for water heating, reducing grid reliance by up to 60%," explains Ruan Smith, national sales head: Apex. "It retrofits easily, requires no plumbing changes, and offers remote control via ApexOS. Unlike competitors, it can be centrally controlled in real-time, maximising savings and optimising grid connections while ensuring continuous hot water availability."

Innovation in energy management

At its core, APEX's SGS is an intelligent control system that revolutionises how standard electric geysers, boilers, and hot water systems harness solar energy. What sets this system apart is its sophisticated approach to energy management – rather than simply monitoring temperature, APEX's SGS considers multiple factors to make intelligent decisions about power source selection, consistently prioritising solar

power over grid electricity when both are available.

"The average 60% reduction in energy use per annum with our SGS hot water system is based on an optimised combination of Solar PV energy and intelligent energy management, which is determined by hot water usage patterns," says Smith.

The intelligence behind the system

Central to the APEX SGS's capabilities is the ApexOS platform, which serves as the system's software core. Through this sophisticated operating system, users gain access to comprehensive monitoring capabilities via APEX's Fleet monitoring platform. The system provides detailed insights, including energy flow visualisation, temperature control, and usage patterns through an intuitive web app interface.

The ability to schedule energy use and control heating times ensures consistent hot water availability whilst minimising energy costs and reducing impact on the grid. Even during loadshedding or in off-grid locations, the system continues to produce hot water while the sun shines, providing essential operational resilience.

Users can exercise precise control over their water heating systems, including:

- Setting custom temperature setpoints;
- Defining specific time periods to avoid grid power usage;

- Choosing between grid and PV energy sources;
- Monitoring real-time system performance; and
- Accessing historical data and usage patterns.

Installation and compatibility

One of APEX's SGS' most practical advantages is its compatibility with existing infrastructure. The system can be retrofitted to most geyser cylinders in the market without requiring any plumbing modifications, making it an accessible upgrade for both residential and commercial properties. Installation is straightforward enough that qualified electrical contractors can complete it with minimal specialised training.

Regulatory compliance and market recognition

The APEX SGS has achieved a significant milestone by becoming the first and only system of its kind to be approved by the City of Cape Town for installation on its network. This approval underscores the system's compliance with stringent safety and performance standards, setting it apart from uncertified alternatives that may pose safety risks and insurance complications.

"Using uncertified alternative products that do not meet industry standards and regulations poses significant safety, financial, and operational risks," confirms Smith.

The system can also be used to achieve compliance with the SANSI0400-XA compulsory requirements, which mandate that at least 50% of household hot water production must come from non-grid sources. This compliance positions the APEX SGS as a future-proof solution for South Africa's evolving energy landscape.

Local manufacturing impact

Rubicon's commitment to local

manufacturing and development of APEX's SGS carries significant implications for South Africa's renewable energy sector. Beyond creating jobs and supporting local suppliers, Apex's innovation is creating real South African IP, which is deployed around the world.

Large-scale applications

The system is particularly useful for residential estates where hot water availability is crucial, whilst satisfying the constraints of off-grid, backup or bulk grid supplies and other public utility load mandates. Using Apex's MCS microgrid control technology, it is possible to manage a fleet of devices. Harnessing the unique technical abilities of our control infrastructure, centralised control systems can be used to orchestrate a fleet of devices to meet the demands of a constrained connection or optimise it according to tariff structures.

Looking ahead

As South Africa continues to grapple with rising electricity costs and grid reliability challenges, APEX's SGS represents a significant step forward in sustainable energy solutions. Its combination of intelligent energy management, user-friendly control systems, and proven energy savings positions it as a leading innovation in the water heating sector.

For businesses considering renewable energy solutions, APEX's SGS offers a compelling package of benefits: substantial cost savings, improved energy independence, and sophisticated control capabilities, all backed by local support and regulatory compliance. As the renewable energy sector continues to evolve, solutions like APEX's SGS demonstrate how innovative technology can address both environmental and economic challenges whilst supporting local industry development.

Enquiries: www.apexsolar.tech

Empowering precision: measuring and managing energy

In today's fast-paced world, energy efficiency is more than just a buzzword – it's a necessity. Whether in industrial, commercial, or residential settings, precise energy measurement is the foundation of effective energy management. To optimise energy usage and reduce costs, accurate measurement tools are essential.

The importance of energy measurement

Energy consumption affects everything from business operations to household budgets. Without reliable measurement tools, it's impossible to monitor usage

effectively, identify inefficiencies, or implement cost-saving strategies. The right tools help detect wastage, reduce unnecessary consumption, and ensure compliance with energy regulations.

Understanding energy use also enables businesses to implement sustainability initiatives. By analysing energy data, companies can set realistic targets for reducing their carbon footprint, contributing to a greener future while improving operational efficiency.

Tools for accurate measurement

A wide range of high-quality measurement

tools are available to cater to diverse energy needs. From basic diagnostic devices to advanced monitoring systems, the right equipment can make all the difference in accurate energy assessment. Some essential tools include:

Multi-meters: Essential for diagnosing electrical faults, multi-meters measure voltage, current, and resistance, ensuring safety and efficiency in electrical installations.

Smart timers: These devices help schedule electrical appliances, optimising energy use and reducing unnecessary power consumption.

Clamp meters: Ideal for non-contact current measurement, clamp meters allow professionals to monitor electrical systems with precision and ease.

Smart energy meters: These provide real-time insights into energy consumption, enabling users to adjust usage patterns for maximum efficiency.

Efergy energy meters: Designed to track energy consumption, the Efergy meter functions like a speedometer for energy use, giving instant feedback and featuring a budget bar to help manage costs effectively.

From measurement to management

Measurement is just the first step. The true value lies in using this data to make

informed decisions about energy usage. Businesses can identify peak usage times, adjust processes, and implement automation to enhance efficiency. Homeowners can detect high-consumption appliances and modify their habits to reduce their energy bills.

The rise of smart technology has further revolutionised energy management. Integration with IoT-enabled devices allows real-time monitoring and control, helping both individuals and businesses make proactive adjustments. By leveraging these technologies, users gain greater control over their energy usage, ultimately reducing costs and improving sustainability.

The future of energy management

With the availability of top-tier energy measurement solutions, users can take control of their energy consumption. A wide range of tools ensures that whether you are an industry professional, a business owner, or a homeowner, there are effective solutions for precise energy monitoring.

Energy efficiency starts with accurate measurement. "By understanding how and where energy is used, we can work towards smarter consumption, lower costs, and a more sustainable future," said Voltex. "If you have energy, we can measure it."

Enquiries: www.voltex.co.za





Aurora Lighting Africa redefines supermarket illumination with the Linium+ LED linear

Aurora Lighting Africa is set to transform supermarket lighting with the introduction of the Linium+ Retail Wattage Selectable LED linear, a cutting-edge solution designed to meet the specific demands of retail environments. Engineered for efficiency, adaptability, and superior performance, the Linium+ enhances both the shopping experience and operational excellence through its advanced lighting capabilities.

At the heart of the Linium+ is an innovative modular system featuring a trunking rail that houses wiring harnesses alongside separate clip-in luminaires. This design not only simplifies installation but also allows for extensive customisation. Delivering up to 180 lumens per watt, the Linium+ provides high-efficiency, bright illumination, significantly improving visibility and energy savings, which are all critical factors in large-scale retail spaces.

A key feature of the Linium+ is its ability to create a continuous line of light spanning up to 70 m. This ensures consistent illumination across supermarket aisles, enhancing product visibility and customer comfort. The plug-and-play installation eliminates the complexity of traditional lighting upgrades, enabling swift and seamless deployment.

Unparalleled flexibility in installation

The Linium+ offers exceptional versatility, with options for surface mounting or suspension, accommodating diverse architectural and design requirements.

Available in multiple lengths – 600 mm, 1,200 mm, 1,500 mm, 1,800 mm, and 2,400 mm – it caters to a variety of structural needs. Additionally, a range of lens options (30°, 60°, 90°, 120°), including asymmetrical and double asymmetrical lenses, allows for tailored lighting solutions, from focused accent lighting to broad ambient illumination.

Advanced adaptability and energy efficiency

Designed for dynamic retail environments, the Linium+ integrates interchangeable wiring options (3-wire, 5-wire, 7-wire, and 8-wire) and a built-in circuit selector, enabling flexible wiring configurations for different lighting levels during trading, merchandising, emergency lighting or store closure.

For enhanced energy efficiency, optional daylight and motion sensors adjust lighting levels based on natural light availability and shopper movement, reducing energy consumption during off-peak hours and optimising operational costs.

Low maintenance and long-term reliability

A major advantage of the Linium+ is its low-maintenance design, featuring replaceable light modules that minimise downtime and operational disruptions. This ensures long-term reliability, essential for maintaining a well-lit, shopper-friendly environment. This



The Linium+ by Aurora Lighting Africa sets a new standard for supermarket lighting.

- Scylagh Clunnie, managing director, Aurora Africa

system enables the replacement of only the luminaire at the end of life and not the wiring and trunking system. This significantly reduces labour and replacement costs for future upgrades.

"The Linium+ by Aurora Lighting Africa sets a new standard for supermarket lighting. With its blend of high luminosity, energy efficiency, and

flexible customisation options, it provides retailers with an advanced solution to enhance their lighting infrastructure while optimising costs and improving the overall shopping experience," said Scylagh Clunnie, managing director of Aurora Lighting Africa.

Enquiries: info@aurora-africa.com



Brightening high-volume spaces: leveraging high-powered LEDs for efficiency and performance



In industrial settings, lighting isn't just a necessity, it's a critical component for safety, productivity, and cost management. High-powered LEDs, such as Radiant Lighting's RLL400 and RLL401, redefine industrial illumination with exceptional energy efficiency and superior brightness. How can these advanced lighting solutions enhance operations in high-volume areas?

Illuminating performance

The Radiant RLL400 and RLL401 high-powered LEDs are designed to transform large spaces with their superior light output. Featuring a robust 6,500K daylight colour temperature, these lights deliver bright, natural lighting that enhances visibility and reduces eye strain. Their wide 220° beam angle ensures consistent illumination, minimising shadows and dark zones in warehouses, manufacturing plants, and other high-traffic areas.

Efficiency on an industrial scale

In environments where lights run continuously, energy efficiency becomes a cornerstone of cost-saving strategies. Here's why the Radiant Lighting RLL400 and RLL401 stand out:

- **High lumen-to-watt ratios:** Offering impressive energy efficiency, these LEDs maximise brightness while keeping energy consumption low.
- **E40 base compatibility:** These lamps are ideal for integration with high bays, simplifying upgrades in existing infrastructure.
- **Longevity:** With a three-year warranty, these LEDs promise durability, reducing maintenance

and replacement costs over time.

Why switch to high-powered Radiant Lighting LEDs?

LED technology is revolutionising industrial lighting, offering benefits that outshine traditional options like metal halides or fluorescent lamps:

- **Instant on:** Unlike older bulbs, LEDs achieve full brightness immediately, critical for fast-paced environments.
- **Sustainability:** Lower energy consumption translates to reduced greenhouse gas emissions, aligning with sustainability goals.
- **Consistent brightness:** LEDs maintain their luminance with minimal light deterioration over their lifespan.

Applications of Radiant Lighting RLL400 and RLL401

These high-powered LEDs excel in various industrial and high-volume settings:

- **Warehousing:** Enhance safety and streamline operations with bright, consistent lighting.
- **Production floors:** Improve precision and quality control with daylight-like illumination.
- **Logistics centres:** Ensure smooth operations with wide-beam coverage in loading and unloading zones.

The bright choice for industrial lighting

The Radiant RLL400 and RLL401 combine advanced LED technology with industrial-grade durability, offering a dependable solution for even the most demanding environments. Their energy efficiency not only reduces costs but also supports sustainable business practices.

Enquiries: www.radiant.co.za



BEKA Schröder supplies off-grid lighting solution to Railton Walkway



We are very proud to be associated with Swellendam Municipality in providing a sustainable lighting solution for this project.

- BEKA Schröder

Local manufacturing

BEKA Schröder develops and manufactures sustainable LED lighting products in South Africa, designed and suitable for local conditions. "We are very proud to be associated with Swellendam Municipality in providing a sustainable lighting solution for this project," the company said.

Enquiries: info@beka-schreder.co.za

BEKA Schröder recently supplied the solar lighting solution for the newly constructed Railton Walkway in Swellendam, Western Cape. The walkway stretches between the Railton Clinic and the Railton Community Hall.

Off-grid lighting solution

An off-grid lighting solution was required for this project. BEKA Schröder's Solarpole, an integrated LED solar lighting solution, with the Kazelle post top luminaire, has been installed along the walkway.

The South African-designed and manufactured Solarpole presents a comprehensive solution for off-grid solar lighting needs in outdoor residential and public settings. It has been designed for ease of installation over an existing Ø76 mm pole.

The cylindrical solar module is a revolutionary feature, using vertical solar panels to achieve an aesthetically pleasing design and reduced wind resistance. The efficient vertical module incorporates six slim monocrystalline solar panels to optimise the photovoltaic process and maximise solar energy.

It has sufficient autonomy to cater for up to two continuous overcast or rainy days to continue its reliable night operation. It has been designed to operate reliably at a high light output over an 11-hour period.

A statement by the mayor

Francois du Rand, Swellendam Municipality's executive mayor, stated the following about the new walkway: "This project dramatically benefits all our residents, especially the school kids who can now walk to school without getting their shoes wet and dirty during the winter months.

"This walkway not only makes the daily route for our children more accessible and safer but also significantly improves access for all residents visiting the expanded clinic. It's a big step forward in our efforts to make Railton a better and more accessible place for everyone, enhancing our quality of life and safety."

ECOBAY RP MAXI

ECOBAY RP MINI

ECOBAY RP MAXI with skirt

ECOBAY SP

LEDBAY-MIDI
Z2 Z21 Z22

LEDBAY-MAXI 1
Z2 Z21 Z22

LEDBAY-MAXI 2

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Blu2Light integration for Bespoke Lighting's modern office spaces

Bespoke Lighting, in collaboration with interior designers, implemented an innovative lighting solution for its modern office spaces, prioritising aesthetics, comfort, and Vossloh-Schwabe's Dark Lighting technology has been seamlessly integrated into custom linear fixtures to provide a sleek, contemporary look while minimising glare and enhancing visual comfort.

A key feature of this project was the use of indirect lighting, designed to be subtle on the eyes, creating a welcoming and productive environment throughout the offices.

Comprehensive lighting and motorised control

Blu2Light was specified to control all DALI luminaires across the office, including motorised curtains and blinds in meeting rooms. The boardroom's advanced AV system communicates directly with Blu2Light via a potential-free contact connected to the Blu2Light PB4 interface, ensuring seamless integration and control.

Pre-programmed scenes for versatile spaces

To enhance user experience, several pre-programmed scenes were created,

each designed to adjust lighting levels and motorised settings for blinds and curtains:

- **Video call scene:** optimised lighting and blind positioning for video clarity.
- **Presentation scene:** dimming lights and adjusting blinds to reduce glare on screens.
- **Meeting scene:** balanced lighting and open blinds to create a collaborative atmosphere.

These scenes can be activated through

various interfaces, including:

- The AV system;
- EnOcean wireless switches; and
- The LinA Touch app.

Automated daily reset for convenience

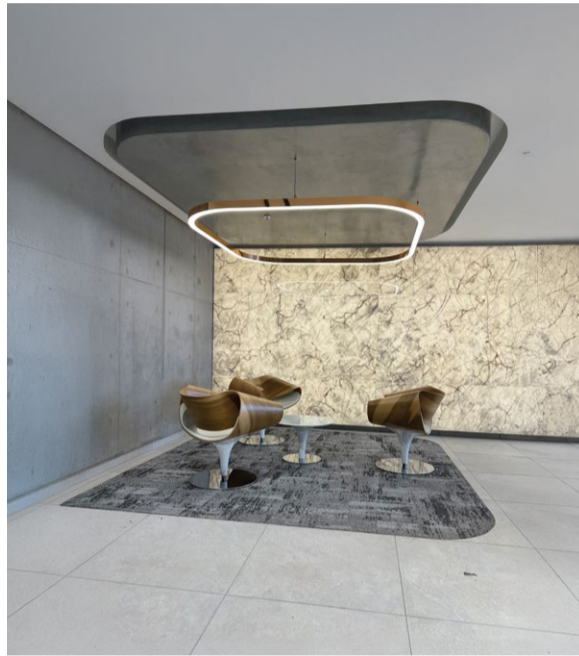
At the end of each workday, the system automatically resets to default settings, ensuring that:

- Blinds are fully opened; and
- Curtains are closed.

This automated reset ensures the office is ready for staff each morning, providing a consistent and welcoming environment as they begin their workday.

The seamless integration of Blu2Light with lighting, AV, and motorised systems offers a user-friendly, adaptable, and energy-efficient solution, setting a new standard for modern office lighting.

Enquiries: www.vossloh-schwabe.com



Lighting trends and challenges

By Philip Hammond, director at BHA School of Lighting

Over the past decade, I've chronicled the evolution of lighting technology in South Africa through numerous articles, both locally and internationally. As I began researching this piece on lighting trends since 2015, I realised how dramatically our industry has transformed.

The story begins with LEDs, first introduced to South Africa in 2008. These revolutionary devices have not only become the gold standard for energy-efficient lighting but have also catalysed a wave of technological innovations that would have been impossible without them.

Let's explore the remarkable developments that have shaped our industry since 2015 – some of which might surprise you, despite being available for years.

What has changed?

The newer technologies are all based on the use of the Internet of Things (IoT) and include the following:

- **Power over Ethernet (PoE)** is the powering of luminaires with low-voltage direct current using CAT data cables. Data transfer and powering luminaires can be done using the same cables. The benefits are greater energy efficiency, safety, lower installation

costs, and eliminating the need for an electrician to install the luminaires. IT professionals or business owners can install the luminaires themselves. The result is between 50% and 80% lower installation costs, providing greater flexibility when layouts change. (Demonstrated in 2012.)

- **Visible Light Communication (VLC)** makes it possible to enable luminaires to provide Wi-Fi connectivity. Or even better, to use LED light for data transmission, both up and down, at much higher transfer speed and much larger data packages. (Demonstrated in 2011.)
- **Indoor Positioning Systems (IPS)**, in simplistic terms, are like global positioning systems (GPS) for indoors. They use luminaires fitted with beacons, making it possible to negotiate shopping malls, hospitals, museums, galleries and supermarkets using smartphones. (Demonstrated in 2014.)
- Different control systems such as **Bluetooth Mesh (BLE)** or Casambi make it possible for many communications between luminaires and other devices, such as CCTV, to control luminaires over a vast area – even across the road and in multi-level facilities. Zones, scenes, motion sensing, daylight harvesting, and more to contribute to super efficiency. (Perfected and began using in 2015.)

- **Human-Centric Lighting (HCL)** is lighting that promotes the well-being of the occupants in a way that mirrors the circadian rhythms of humans. (Conceptualised in 2014, and in use since 2015.)

We teach our students how to design the system architecture of each of the above so they can include luminaires with the relevant capabilities in their lighting designs. They learn how to develop the financial case to use the technologies in a presentation to their clients to show the return on investment (ROI) in a winning solution with longevity.

Despite the wealth of innovative lighting technologies available, their limited adoption within the built environment's professional community remains a significant concern. Nevertheless, to promote understanding and encourage the implementation of these advances in lighting and controls, I'll provide an overview of current possibilities in the field.

AI in lighting

Lighting is rapidly making greater use of Artificial Intelligence (AI). Why is lighting adopting AI? Well, here are some of the reasons:

1. It streamlines workflow.
2. It can interpret high volumes of data.
3. It can summarise big subjects into easily readable notes.
4. Uses data that has been accumulated and, interpreted, can be used for smart lighting.
5. It can be used for predictive maintenance to identify lighting equipment that needs maintenance before it fails.

Exciting new technologies and controls

Rather than focus only on AI, here are some of the new lighting technologies and controls that are available:

1. Touchless light switches where light switches recognise the biometrics of the user.

2. Long-range Bluetooth Mesh for outdoor lighting.
 3. Micro-luminaires with high light output and ease of installation.
 4. 3D-printed luminaires.
 5. Acoustic luminaires in high-traffic areas, such as call centres.
 6. Embedded solar harvesting with illuminating fabric capable of delivering 109 W/m² of light.
 7. Colour-tuneable LED grow lights for use in vertical farming with a variety of crops.
 8. Therapeutic lighting, including light masks used for the treatment of a variety of skin conditions. Other forms of therapeutic lighting for treating Parkinson's Disease and Alzheimer's.
- Quantum Dot lighting, known for the accuracy of its colour rendering.
- Dynamic lighting, which can be used in a real-time environment, can adjust to the user's personal preferences or tasks.

Never stop learning

Continuous learning is fundamental to my role in developing comprehensive technical manuals and training materials. This knowledge enables our students to master new technologies, incorporate advanced systems into their lighting designs, and effectively supervise contractors during installation.

Moreover, staying at the forefront of industry developments allows me to contribute meaningfully to the lighting community, both in South Africa and internationally.

A winning strategy I recently encountered resonates deeply with our industry. "Be teachable: you don't know everything, and you're not always right." This philosophy underscores why lighting professionals should embrace lifelong learning, constantly expanding their expertise in our rapidly evolving field.

Enquiries: www.bhaschooloflighting.co.za



Be teachable: you don't know everything, and you're not always right. This philosophy underscores why lighting professionals should embrace lifelong learning, constantly expanding their expertise in our rapidly evolving field.

- Philip Hammond, Director, BHA School of Lighting



How AI-powered lighting assistants are transforming the local lighting industry

By IESSA

Artificial Intelligence (AI) is rapidly revolutionising industries across the globe, and the lighting industry is no exception. AI-powered lighting assistants are emerging as innovative solutions that optimise energy consumption, improve safety, and enhance user experiences.

For South Africa, a country facing unique energy challenges and an increasing push towards sustainability, the integration of AI into lighting systems presents exciting opportunities for growth and innovation. This article explores how AI-powered lighting assistants are shaping the future of South Africa's lighting industry and how professionals can adapt to these technological advancements.

What are AI-powered lighting assistants?

AI-powered lighting assistants are intelligent systems that manage and optimise lighting solutions using data analysis, machine learning, and real-time adaptability. These systems can automatically adjust lighting levels based on occupancy, natural light availability, and user preferences. They integrate seamlessly with smart building management systems and Internet of

Things (IoT) devices to create adaptive and energy-efficient environments.

Key functionalities include:

- **Adaptive lighting:** Adjusts brightness and colour temperature according to the time of day, activity, or user needs.
- **Energy efficiency:** Analyses energy usage patterns to minimise waste and reduce operational costs.
- **Predictive maintenance:** Detects potential faults in lighting systems and schedules maintenance before issues arise.
- **Personalisation:** Customises lighting experiences for comfort, productivity, and ambiance.

Global trends driving AI in lighting

Globally, AI-driven lighting solutions are being adopted across various sectors:

- **Smart cities:** Cities are implementing AI-powered street lighting that adapts to pedestrian and vehicle movements, reducing energy consumption and improving public safety.
- **Commercial spaces:** Office buildings and retail environments use adaptive lighting to enhance productivity and customer experiences while cutting energy costs.
- **Industrial facilities:** AI monitors and optimises lighting for operational efficiency and safety compliance.

These trends reflect a growing recognition of the economic and environmental benefits of AI-integrated lighting systems.

Opportunities for South African lighting professionals

South Africa's energy landscape, marked by frequent load shedding and rising electricity costs, creates a strong incentive for adopting AI-powered lighting. Professionals in the industry can leverage these systems to:

- **Enhance energy efficiency:** AI can optimise lighting operations to reduce energy use, aligning with national sustainability goals.
- **Improve public safety:** Adaptive street lighting can illuminate high-traffic or high-crime areas, contributing to safer urban environments.
- **Drive smart building integration:** The construction boom in commercial and residential sectors opens doors for integrating AI-driven lighting into smart infrastructure projects.

Case studies and potential applications

While AI-powered lighting is still gaining traction in South Africa, international case studies offer valuable insights:

- **Barcelona, Spain:** The city employs AI-controlled streetlights that dim or brighten based on pedestrian and vehicular movement, leading to significant energy savings.
- **Singapore:** Smart building projects integrate AI lighting for climate

responsiveness and occupant comfort. South African municipalities and businesses could adopt similar models to combat energy shortages and enhance public services. Collaborations between local tech startups and lighting professionals could fast-track these innovations.

Future outlook

The future of AI-powered lighting in South Africa is promising. Advancements in machine learning algorithms, sensor technology, and IoT connectivity will continue to improve system efficiency and accessibility. Lighting professionals must stay informed about these technologies to remain competitive and drive industry growth.

Investing in professional development, attending industry conferences, and engaging in collaborative projects will be crucial. As AI technology evolves, so too will the opportunities for creating smarter, safer, and more sustainable lighting solutions across the country.

AI-powered lighting assistants offer transformative solutions for South Africa's energy and lighting challenges. By embracing these innovations, lighting professionals can lead the way in creating efficient, adaptive, and sustainable environments. The Illumination Engineering Society of South Africa (IESSA) is committed to supporting its members with the latest insights, educational resources, and networking opportunities to navigate this evolving landscape.

Enquiries: www.iessa.org.za

Synerji launches outdoor solar LED lighting range

By Ilana Koegelenberg

Synerji has introduced an extensive range of outdoor solar-powered LED lighting solutions, featuring advanced photovoltaic technology and robust weatherproof construction. The new product line encompasses garden lights, wall-mounted fixtures, and specialised street lighting applications.

This new solar lighting range represents a significant expansion of Synerji's outdoor illumination portfolio,

offering energy-efficient solutions for applications of any size – from residential to commercial and beyond.

Why go solar?

The new solar LED range offers multiple practical advantages in outdoor applications. By eliminating the need for electrical wiring, these fixtures significantly reduce installation complexity and costs. The integrated photovoltaic panels and LiFePO4 battery systems enable operation for up to 24 hours on a single charge, translating to consistent illumination with zero ongoing energy expenses.

Built with weatherproof construction and anti-UV materials, the fixtures ensure reliable performance and durability in exposed outdoor environments. The motion detection capabilities in selected models, with ranges up to 10 m, provide enhanced security functionality while optimising energy usage.

Premium garden lighting

The SYSOLSTR series of garden lights leads the range with powerful illumination capabilities. Delivering up to 2,300 lumens through 224 SMD2835 LED arrays, these fixtures incorporate mono-crystalline silicon solar panels rated at 12.5 W. The series features replaceable LiFePO4 batteries with 6,000 mAh capacity, providing over 32 hours of operation from a single 4–6-hour solar charge in strong sunlight.

Built to withstand outdoor conditions, the garden lights offer IP65-rated protection and use ABS and PC materials with anti-UV and fireproof properties. The fixtures provide 360-degree illumination with

an effective projection surface of m². Installation is flexible, accommodating pole diameters from 50–60 mm at recommended heights of 2–3 m. Users can select between colour temperatures of 4,000 K and 6,000 K.

Versatile wall-mounted options

The wall-mounted collection includes several variants, from standard fixtures to models with spikes for landscape placement. The SYSOLWBM series features integrated 8 W LEDs producing 1,000 lumens, while more compact 4 W models deliver 500 lumens. These fixtures incorporate motion detection technology with ranges up to 6–8 m.

Protected to IP54 standards, the wall lights use mono-crystalline silicon solar panels and 2,000 mAh batteries, with some models offering a CCT adjustment for versatile lighting options. The range includes both standard wall mounts and spike versions for flexible garden placement, with spike lengths up to 500 mm available for optimal positioning.

Service and support

All products in both categories come with manufacturer warranty coverage and comprehensive user documentation. The garden lights carry a three-year warranty on the fixture, while wall-mounted models offer two-year coverage on the fixture and one year on the battery.

Enquiries: www.synerji.co.za



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Lightning protection – earthing and resistance

By: Richard Evert of the Earthing and Lightning Protection Association (ELPA)

The purpose of a lightning protection system (LPS) is to protect structures from direct lightning strikes by intercepting and diverting lightning currents away from the building and the assets being protected.

The LPS comprises two parts: the “external LPS”, which manages the lightning current, and the “internal LPS”, which manages the overvoltage introduced on the external LPS.

Lightning current: A lightning strike from a cloud-to-ground lightning event is an electric current phenomenon transferring electric charge to ground (measured as Coulombs/second or amperes).

Resistance and voltage: Current flowing through any medium with resistance produces a voltage (Ohm’s Law: $V = I \times R$). Soil is a poor conductor with high resistance. While earth electrodes reduce the external LPS

earth resistance, they can never reach zero Ohms. Therefore, an external LPS inevitably produces lightning voltage surges. Higher earth resistance will result in higher lightning voltage at the base of the external LPS.

Withstand Voltages

Electrical installations and electronic equipment: In South Africa, these are designed to consume power at a fixed voltage. Each component has a maximum operating voltage and may include surge protection to limit the voltage across external terminals to a safe maximum value.

The lightning voltage surge from an external LPS will exceed that maximum voltage if the earth resistance is not within design specifications, with subsequent damage and unsafe conditions.

The LPS designer will design the internal LPS for expected overvoltages from realistically achievable earth resistance from the optimally designed earth electrode.

Maximum earth resistance: The maximum allowable earth resistance of an external LPS cannot be dictated independent of the prevailing soil resistivity at the site contrary to current expectations.

The LPS designer must provide a sustainable and affordable balance between obtainable earth resistance and internal LPS surge protection measures to control overvoltages to a safe value based on the obtained earth resistance and prevailing lightning statistics.

Internal LPS

To control overvoltages introduced by the external LPS, the LPS

designer will design the internal LPS that will dictate:

- Separation distances between the external LPS and other electrically conducting elements internal to the structure;
- Equipotential bonding of the LPS by direct connections to separated conductive parts;
- Equipotential bonding of the LPS via surge protective devices to separated electrically conducting parts such as the electrical installation and communication circuits.

The LPS designer will dictate the maximum allowable earth resistance for a particular site by negotiating with property owners and risk managers.

Under special circumstances, this value may exceed 10 Ohms, requiring appropriate equipotential bonding and surge protection devices to cope with the anticipated higher voltages.

Earth resistance measurement

Standard measurement method: The most reliable direct method is the fall-of-potential method. Using Ohm’s Law, the test equipment injects a current (I), measures the voltage (V), and calculates the resistance (R).

R1 through R8 in Figure 1, represent the earth resistance of eight equidistant slices around the earth electrode. The resistance measured across each slice decreases because the square of the cross-sectional area increases substantially while the slice length remains constant. That is, $R8 \ll R7 \ll R6 \ll R5 \ll R4 \ll R3 \ll R2 \ll R1$.

The measurement circuit injects electric current of known magnitude and waveshape, circulating between the earth and current injection electrodes, passing through the electrode earth resistance zone marked as “A”.

The voltage measuring electrode, placed between the other two electrodes, measures the voltage produced from current flowing through the series circuit of R1 to R8.

When measurements are repeated between the earth and current injection electrodes (Figure 2), the voltage increases at a decreasing rate in zone A until reaching zone C, where the increase becomes negligible. In zone B, the earth resistance of the current injection electrode becomes evident as voltage increases again.

Only measurements taken in zone C are acceptable.

Measurement verification: The tester’s responsibility includes: validating

measurements by taking voltage readings at several points in zone C to confirm consistent resistance values; verifying zone C exists, obtainable with a current injection lead of sufficient length; and ensuring final results are not taken from within zone A or zone B.

When the current injection lead is too short: the current injection electrode will be too close to the earth electrode; Zones A and B will overlap; and Zone C will not exist.

Trench electrodes in earth electrode scheme:

The tester must take cognisance that the earth electrode extends to the ends of the buried trench earth conductors. Therefore, the distance between the current injection electrode and the earth electrode must be determined by the shortest distance to any part of the buried earth electrode.

Where Zone C is not achieved despite expected calculations of the required surface distance between the earth and injected current electrodes, buried conductors may be the source of the measurement error.

Consequences of false tests

False measurements from improper testing lead to LPS lightning protection failure. With typical lightning strikes injecting over 10,000 A, underestimating resistance by even 10 Ohm introduces an additional 100,000 V of overvoltage. The internal LPS cannot absorb such excessive overvoltages resulting from negligent measurements.

False tests will lead to damaged electrical installations and electronic equipment, and possible permanent injuries or even fatalities.

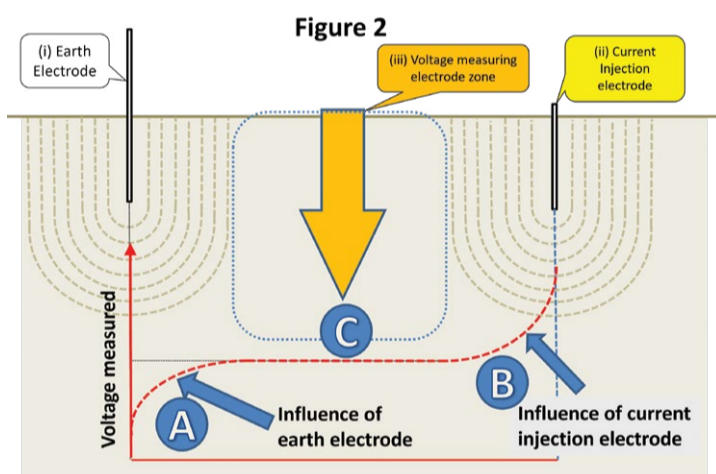
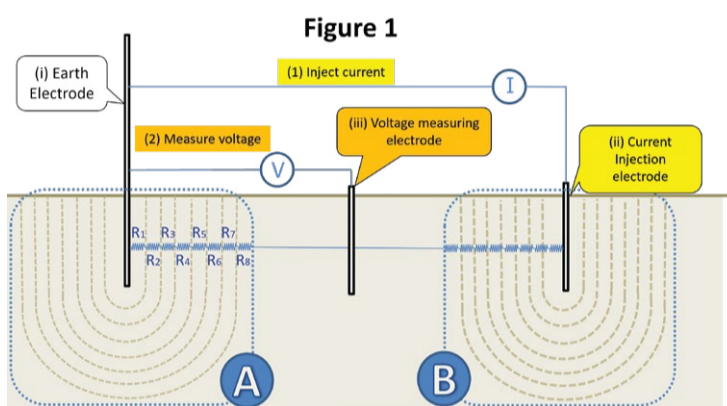
Enquiries: <https://elpasa.org.za/>

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Njabulo Vincent Mthembu: overcoming adversity and growing at LESCO

Njabulo Vincent Mthembu is a 26-year-old from Katlehong, Johannesburg, who works on the assembly line at LESCO Manufacturing, assembling electrical components such as shutters and packaging. Mthembu’s journey has been defined by resilience, personal growth, and a determination to rise above adversity.

In 2003, he relocated to Alexandra (Alex) to stay with his grandmother after his mother became sick and has had to navigate complex family dynamics ever since. “Life in Alex is tough, but we make ends meet,” Mthembu reflects. Despite the hardships, he has maintained a strong responsibility for his family.

When he was a child, Mthembu was struck by a car while walking to Sandton City. The accident left him with limited mobility in his left leg and arm and a shaky right hand. Reflecting on the impact of the accident, he says, “I didn’t realise the extent of my disability until later in life. It has affected my physical abilities, but I’ve learned to work around it.”

Despite these physical challenges, Mthembu

remains ambitious and plans to master all workstations at LESCO and achieve 100% efficiency within two years. “I’m working hard to learn everything,” he says. “My goal is to be fully efficient at every station.”

Before joining LESCO, Mthembu worked as a cleaner and assistant in various roles. His path to LESCO began when he was recruited by Afrika Tikkun, a non-profit organisation that supports young people with employment opportunities. Mthembu joined LESCO in February 2024 – a turning point in his life.

At first, he approached the job with a mindset focused solely on earning money, not fully engaging with his tasks. “During the first month, I used to work just for the money and not mind anything happening,” he admits.

However, as time went on, Mthembu’s attitude began to shift. “As I was busy working, I developed a love for my work, especially the tasks I was assigned, like the shutters, which, at first, I couldn’t do. Now I can do them quickly,” he explains. “Before this job, I wasn’t a confident person. I had low trust in myself and



Njabulo Vincent Mthembu

low self-esteem,” he says. Mthembu’s newfound dedication shows as he continues to take on more responsibility at LESCO.

Mthembu’s journey at LESCO has been transformative. With his colleagues’ and supervisors’ support and his growing confidence, he has become more focused on his personal and professional development, proving that disability is not inability.

His hobbies include listening to music, particularly Tupac and Eminem.

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