

## CELEBRATING EXCELLENCE IN THE ELECTRICAL INDUSTRY



All smiles ... Thursdon Duncan (ECA President), Mark Mfikoe (ECA National Director), Wayne Terner (Managing Director, Major Tech) and Conrad Koch, MC and ventriloquist-entertainer, at the recent ECA (SA) Presidential Awards.

At the end of November, the 10<sup>th</sup> annual ECA(SA) Presidential Excellence Awards 2022 were held at the prestigious Birchwood Hotel and Conference Centre in Boksburg where the cream of South Africa's electrical contracting crop were honoured for their hard work and excellence in 2022. It wasn't the easiest year for many, however, despite coming out of a global pandemic, ECA members and sponsors took the opportunity to convene for the only event that recognises and rewards excellence in the South African electrical contracting sector. Read on to see all the finalists and winners.

### ALL THE WINNERS

#### Installation of the Year – Industrial

- Sponsored by CCG Cable Terminations

#### Winner

- B&W Instrumentation and Electrical (BW Khumani Discard Spreader System Project)

#### Finalists

- Conli Turnkey Projects (Daisy Energy Project)
- Edison Power KwaZulu-Natal (ELIDZ Bushveld Project)

- Edison Power KwaZulu-Natal (ELIDZ Draeger Project)
- Besamandla (CPT60 - Films Project)
- Mega Volt Loden Electrical (AA Silverton Project)
- Siyaya Power Solutions (Hesto Harnesses Project)

#### Installation of the Year – Residential (Houses)

- Sponsored by Voltex

#### Winner

Edison Power KZN (Oceans Hotel Apartments Project)

#### Finalists

- Yanda Electrical Contractors (Electric Fence System Installation and Certification Project)
- Yanda Electrical Contractors (Supply, Delivery, Electric Fence Rewiring and Certification Project)
- Vyster Elektries (House Coetzer)
- Vyster Elektries (House Erasmus)
- Vyster Elektries (House Gray)
- Vyster Elektries (House Jooste)

#### Installation of the Year – Residential (Complexes)

- Sponsored by Voltex

#### Winner

- MLE Electrical Contractors (Ballito Hills Lifestyle Estate Project)

#### Finalists

- Mega Volt Loden Electrical (Olive Gate Project)
- MLE Electrical Contractors (Fynbos Lifestyle Estate Project)

#### Installation of the Year – Hotels and Hospitals

- Sponsored by Major Tech

#### Winner

- Siyaya Power Solutions (King Dinuzulu Hospital Complex Project)

#### Finalists

- Edison Power (Dr Pixley Ka Isaka Seme Memorial Hospital Project)

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## CELEBRATING EXCELLENCE IN THE ELECTRICAL INDUSTRY



**Installation of the Year – Industrial.** Jaco Le Roux (Area Manager, Mpumalanga, CCG Cable Terminations), Duane Harley (B&W Safety Manager) and Johan Steyn (B&W Instrumentation Site Manager).



**Reticulation Contractor of the Year.** John Whipp (Key Account Manager, Distribution, CCG Cable Terminations), Andisiwe Mbilase (Besamandla Projects Administrator, Teraco Data Centre) and Mark Mfikoe (ECA National Director).



**Installation of the Year – Residential (Complexes).** Peter Schuurman (Voltex Regional Sales Manager, North East Region), MLE Electrical Contractors' Dewald Prins (KwaZulu-Natal Regional Manager) and Andrew Harmse (Cape Town Regional Manager).



**Installation of the Year – Residential (Houses).** Lizel de Jager (National Marketing, Voltex) and Sakhayedwa Mpungose (Site Supervisor, Edison Power, Oceans Hotel Apartments).



**Installation of the Year (Hotels & Hospitals).** Wayne Terner (Managing Director, Major Tech), Devagle Chetty (CEO, Siyaya Power Solutions) and Mark Mfikoe (ECA National Director).



**Installation of the Year – Retail & Shopping Centres.** Mark Mfikoe (ECA National Director), Rishi Nagessar (Contracts Manager, Midway Crossing Mall) and Wayne Terner (Managing Director, Major Tech), who handed over a Major Tech MT565 Insulation Tester and True RMS Multimeter.



**Best Contributor to Renewable Energy Award.** Thursdon Duncan (ECA President), Dean Martine (Operations Manager, Valsa Trading), Cornelis Rautenbach (Besamandla Contracts Manager, Oyster Bay Wind Farm) and Mark Mfikoe (ECA National Director).



**Best Contributor to Energy Efficiency Award.** Svilen Voychev (CEO, Valsa Trading), Lauren-Leigh Fisher (Besamandla Projects Administrator – George PV Civic Centre) and Mark Mfikoe (ECA National Director).



**National Safety Award.** Mark Mfikoe (ECA National Director), Sakhayedwa Mpungose (Site Supervisor, Edison Power, Oceans Hotel Apartments), Taffy Kabwebwe (Sales Manager, RT6 – Brady Official Distributor), Nisha Rampaul (Group Finance Manager), Cindy Shabalala (Safety Manager) and Rishi Nagessar (Contracts Manager, Midway Crossing Mall). The winner received a Brady M210 Label Printer with labels, a Brady Electrical Lock-out System and Carry Bag, and a VELCO product selection.



**ECA(SA) Regional Excellence Award of the Year 2022.** Mark Mfikoe (ECA National Director), Anthony Schewitz (Regional Director, Highveld Region) and Thursdon Duncan (ECA President).



**Male Apprentice of the Year.** Thursdon Duncan (ECA President), Andrew Edwards (Head of Electrical Sales, HellermannTyton), Maditsi Liegfield Mafa (winner) and Mark Mfikoe (ECA National Director).



**Female Apprentice of the Year.** Mark Mfikoe (ECA National Director), Thursdon Duncan (ECA President), Mark Broude (Divisional Director, Commercial Division, Kentek Imaging Systems), Ronewa Chilando (winner) and Quinten Dorman (Channel Sales Representative – Brother).



**Spreading the love...** ECA President, Thursdon Duncan and Mathys de Jager (Chairman, Highveld Exco), handed over R30 000 raised at the Highveld Region's Annual Charity Golf Day to Abby-Jade Reason (Principal, the Apricot Tree Centre), Sitembile Nyatanga (Head Coordinator, Apricot Tree Centre) and Annette van Niekerk (Accounts and Fundraising Coordinator, Apricot Tree Centre).



**Overall Apprentice of the Year.** Andrew Edwards (Head of Electrical Sales, HellermannTyton), Maditsi Liegfield Mafa (winner) and Mark Mfikoe (ECA National Director). Mafa received a HellermannTyton electrician's tool kit.



**Women-Owned Business of the Year.** Finalist, Devagle Chetty (CEO, Siyaya Power Solutions), Mark Mfikoe (ECA National Director) winner, Lumie Naidoo (LN Force) and Andrew Edwards (Head of Electrical Sales, HellermannTyton).



- Edison Power (Oceans Hotel Apartments)
- Siyaya Power Solutions (Clairwood Hospital Project)

**Installation of the Year – Retail and Shopping Centres**

- Sponsored by Major Tech

**Winner**

- Edison Power (Midway Crossing Mall)

**Finalists**

- Eddies Electrical (Compas Building Project)
- Edison Power (Midway Crossing Mall Project)
- Functional Services (Voltex Hybrid Alberton Concept Store Project)
- Siyaya Power Solutions (Sasol Hammarsdale Project)
- Vyfster Elektries (Clay Café Kyalami Project)

**Reticulation Contractor of the Year**

- Sponsored by CCG Cable Terminations

**Winner**

- Besamandla (Oyster Bay Wind Farm Project)

**Finalists**

- Besamandla (Brackengate Data Centre Project)
- Edison Power (KwaDukuza Municipality Substation Upgrade)
- Mega Volt Loden Electrical (E-Shelter Project)

**National Safety Award**

- Sponsored by Brady

**Winner**

- Edison power (Midway Crossing Mall)

**Finalists**

- B&W Instrumentation and Electrical – Kroondal and Rustenburg Sibanye – Stillwater Project
- Besamandla (60 MW Salima PV Solar Plant Project)
- Edison Power (Dr Pixley Ka Isaka Seme Memorial Hospital Project)
- Edison Power (Bushveld Electrolyte Project)

- Edison Power (KDM Substations Project)
- Edison Power (Midway Crossing Mall Project)
- Edison Power (Oceans Umhlanga Hotel & Apartments Project)

**Best Contributor to Energy Efficiency**

- Sponsored by Valsa Trading

**Winner**

- Besamandla (George Civic Centre Project)

**Finalists**

- Elex Khanyisa (Electric House WP3 Project)
- Besamandla (George Civic Centre Project)

**Best Contributor to Renewable Energy**

- Sponsored by Valsa Trading

**Winner**

- Besamandla (Oyster Bay Wind Farm Project)

**Finalists**

- Pearl Solar Electric (Kempton Square Mall Project)
- Brand Engineering (60 MW Salima PV Solar Plant Project)
- Vyfster Elektries (House Duplooy)
- Vyfster Elektries (House Vance)
- Vyfster Elektries (House Aldrich)
- Vyfster Elektries (House Barnard)
- Vyfster Elektries (House Blignaut)
- Vyfster Elektries (House Coetzer)
- Vyfster Elektries (House Goosen)
- Vyfster Elektries (House Gray)
- Vyfster Elektries (House Mee)
- Vyfster Elektries (House Ngobeni)
- Vyfster Elektries (House Roets)
- Vyfster Elektries (House Roos)
- Vyfster Elektries (House Santiago)

**Male Apprentice of the Year**

- Sponsored by HellermannTyton

**Winner**

- Maditsi Liegefield Mafa

**Finalists**

- Martin Odendaal
- Elijah Roy Biljoen

**Female Apprentice of the Year**

- Sponsored by Brother

**Winner**

- Ronewa Chilando

**Finalists**

- Katya Raquel Gomes De Magalhaes
- Charleen De Beer

**Overall Apprentice of the Year**

- Sponsored by HellermannTyton

**Winner**

- Maditsi Liegefield Mafa

**Women-Owned Business of the Year**

- Sponsored by HellermannTyton

**Winner**

- LN Force

**Finalist**

- Siyaya Power Solutions

**Host Employer of the Year**

- Sponsored by Major Tech

**Winner**

- Explosion Proof Projects

**Finalist**

- Masedi Electrical

**ECA(SA) Regional Excellence Award**

**Winner**

- ECA Highveld Region

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



Thumbs up to a seamless power solution - WearCheck's major laboratories in South Africa and beyond are equipped with generators to ensure uninterrupted operation during electricity power outages. The company's laboratory manager, Meshach Govender (left), and managing director, Neil Robinson, are seen here with the generator at WearCheck's Durban, Westville, laboratory.

**WearCheck powers through electricity blackouts**

WearCheck customers can rest assured that the latest round of loadshedding woes plaguing South Africa will not have a detrimental effect on the processing of samples, as every one of the company's major laboratories has a powerful back-up generator.

Managing director of WearCheck, Neil Robinson, outlines the company's power plans, 'WearCheck is an essential

services provider, and many of our clients operate in critically important sectors, such as health care, food production, banking, alternative power generation, aviation, transport and mining. Therefore, despite the significant costs of doing so, we have empowered our labs with the capacity to operate seamlessly with uninterrupted power supplies and generators that kick in automatically as soon as the national electricity supply is cut off during loadshedding.

"We are determined to stay ahead of the country's power struggle, and to provide the usual top-quality service to which our customers are accustomed."

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



## How MV motors can deliver reliability and better total cost

Many critical industrial and other applications can benefit from Medium Voltage (MV) Electric motors, due to their reliability and low total cost of ownership.

According to Floris Erasmus, sales specialist HV motors at Zest WEG, the benefits of MV electric motors includes their being purpose-designed and well protected. This makes them very reliable, and thus well suited for critical applications where the risk of failure-related disruption must be mitigated.

"Any motor application – from pumps and fans to crushers and conveyors – can present a critical risk if a significant portion of the whole operation relies upon it," says Erasmus. "In these cases, it is often worth considering the MV motor option in new projects or in circumstances where motors are being replaced."

While the category of Low Voltage (LV) electric motors tends to end at about 1 000 V, MV motors range from 1 000 V up to as high as 33 kV. In the South African market, the upper end of the MV range is usually 11 kV, he says.

"MV motors are generally not off-the-shelf, and are rather specially designed for their application," he says. The construction is also different to an LV motor. The 'wire' used in the windings, for instance, is more like a rectangular bar. Normally covered with mica tape, they make up form-wound coils.

"The coils are individually wrapped with thicker insulation to accommodate the

higher voltage," he says. "There is only one turn in a slot, so there is no potential difference between turns; this means that there is less chance of an inter-turn failure or short circuit between coils."

An important difference in the winding of an MV motor is that it is conducted using vacuum pressure impregnation (VPI) and the use of an epoxy resin. Applying this resin in a vacuum allows all air and moisture to be removed. The absence of air allows the resin to flow more effectively into the spaces between the steel core and the copper winding. The incidence of air pockets in the slot of the stator is where many winding failures in motors begin.

"If resin is not effectively distributed, this can undermine the mechanical strength of the winding," he says. "The epoxy resin used in MV motors is very strong compared to varnish."

He highlights that the removal of moisture during the VPI process reduces the possibility of short circuits caused by water particles trapped inside the motor windings.

"Another benefit of MV motors is their low starting and operating current," explains Erasmus. "The kilowatt rating of a motor – the power it consumes – is a function of the voltage; by raising the voltage, the amperage drawn is reduced."

The starting current of a motor tends to be about six times higher than the operating current, he points out. By reducing the operating current, an MV motor thereby helps to reduce the strain that high starting currents can place on the electrical system

in a mine, plant or factory.

The MV option also has a distinct advantage when it comes to the use of variable speed drives (VSDs). The transformers that are part of the MV motor installation ensure that no extra filters or add-ons are required to achieve near-perfect sine waves. He notes that MV VSDs are also better at disrupting harmonics in the electrical system.

Protection systems on MV motors are an important aspect of ensuring their longevity. Erasmus explains that they are normally electrically protected with a smart relay which is password-protected. This makes it difficult to by-pass the overload systems that protect the motor, and prevents the motor from being started under fault conditions. While this protection might slightly increase installation costs, it helps reduce total cost of ownership.

"In terms of our own MV offering, WEG has recently launched its W51 range – which includes MV motors," he says. "This new range offers improved efficiencies and higher output to weight ratios, and the motors are suitable for VSD."

Availability is from a 315 to 450 frame, which with four-pole motors translates to a range of 132 kW to 1,400 kW. The standard range reaches 6,6 kV but motors up to 11 kV can also be requested.

"The range includes motors for hazardous areas, where there may be gasses which are susceptible to ignition," says Erasmus.

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



Floris Erasmus, Sales Specialist HV Motors at Zest WEG.



## Starsight Energy and Solar Africa to join forces

Renewable energy services provider, Starsight Energy, and South African-based solar firm, SolarAfrica Energy, today announce their merger agreement, combining their strengths to become one of the continent's leading solar players with a genuine Pan-African footprint to provide competitive, full-service renewable energy and energy efficiency solutions to the C&I sector.

The merger, which is subject to standard regulatory approvals including anti-trust approvals, comes at an opportune time following favourable changes in South African renewable energy regulations. The merger will create the first truly Pan-African renewable energy services provider, amidst a global drive towards greener and cleaner energy sources, which is well positioned to serve an even wider range of clients with a comprehensive mix of renewable energy solutions that provides power security, cost savings and carbon reduction. The merged entity will comprise a portfolio of over 220MW of operated and contracted generation capacity, and 40MWh of operational battery storage, with an additional generation pipeline exceeding 1GW.

Alongside the merger, funds managed by AIIM have committed substantial further funding to the South African subsidiary of the merged entity, to progress the build-out of the contracted pipeline in the C&I wheeling market in South Africa, providing energy security and certainty of pricing to large C&I customers.

Starsight Energy was founded in 2015 and is backed by Helios and AIIM, a member of Old Mutual Alternative Investments. It offers reliable and sustainable energy and cooling solutions – on- and off-grid – to the C&I sectors, with market leading operations in East and West Africa with over 656 sites in Nigeria, Kenya and Ghana. The company was named one of Africa's fastest growing companies in 2022 by UK Financial Times, and is also the first renewable energy company in Nigeria to secure carbon

credit accreditation, certified by the Verra Verified Carbon Standard (VCS) programme, the world's most widely used voluntary Green House Gas (GHG) certification programme.

Founded in 2011, SolarAfrica has built up extensive experience in delivering state-of-the-art energy solutions through Power Purchase Agreements (PPAs) to businesses across Southern Africa. It has evolved from a specialist provider of rooftop solar photovoltaic systems to a full-service provider of capex-free, green energy solutions ranging from solar and battery storage options through to wheeling and electricity trading to the C&I market.

SolarAfrica has already positioned itself as a competitive player in the newly enabled power wheeling space, having recently signed up large blue chip customers. The group is now well positioned to service large power users with a lower cost electricity alternative from a recently developed centralised solar generation site, taking advantage of South Africa's newly revised regulations permitting wheeling and self-generation of up to 100MW by private generators. In 2021, SolarAfrica was named the continent's leading solar energy firm, scooping the Africa Solar Industry Association's African Solar Company of the Year award.

Over and above the global shift towards the reduction of greenhouse gas emissions through decarbonisation, the demand for cost-effective and reliable power by commercial and industrial users will continue to grow and open further opportunities in the renewable energy sector particularly in South Africa, where power supply is expected to remain constrained with a substantial deficit of generation capacity.

Tony Carr, Starsight Energy's Group Chief Executive Officer, explains: "This merger demonstrates our joint commitment to expand our footprint across Africa. With SolarAfrica, the new combined group becomes one of the largest commercial providers of reliable and clean energy solutions to the commercial and industrial sector across the continent."

"The merger will enable efficiencies across the group, ranging from procurement to funding, and further allow for the rollout of our proprietary technology platform across the continent. These efficiencies will assist the group in providing a unique and valuable offering, that takes customers on a green energy journey to solve their power struggles and enables a sustainable future for their

businesses," says David McDonald, SolarAfrica Energy co-founder and Chief Executive Officer.

Olusola Lawson, Managing Director and co-Head at AIIM, comments: "The transformational Starsight/SolarAfrica merger is a strong illustration of value creation in the nascent African commercial and industrial renewable energy space. As one of Africa's largest renewable energy equity investors, and with a renewable energy portfolio of c.2GW, AIIM has been privileged to play a key role in the growth and expansion of the Starsight platform over the last five years. We are delighted to continue to support the business with additional funding to expedite the realisation of its substantial pipeline, and we look forward to the continued success of the combined platform."

Ogbemi Ofuya, Partner at Helios Investment Partners notes: "This transaction combines the complementary capabilities and geographical reach of two leading players in distributed energy solutions for businesses and industries across Africa. Helios has been a part of Starsight's journey from its inception and has supported the growth of the business leveraging on our experience in building and scaling market leading infrastructure businesses on the continent. This transaction creates a market leader across Sub-Saharan Africa's largest economies, with a long track-record of providing, cleaner and more reliable energy solutions for its customers delivered at competitive price levels. We remain excited about the significant growth prospects of the enlarged Starsight platform."

The newly formed entity will comprise of 340 staff across multiple jurisdictions and create a combined shareholder group providing financial capacity to deliver renewable energy services across Africa.

Looking ahead, the two parties believe that their combined expertise, along with SolarAfrica's energy solutions software platform, which enables its sales teams to customise energy proposals and produce accurate savings projections, will not only position the group as Africa's leading provider of green energy solutions to commercial and industrial power users, but will also accelerate Africa's transition towards a greater renewable energy mix.

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

## How to collect money from clients who won't pay

Most of the time tradespeople deal with straight-up clients who pay on time and with a smile. But at some point, you may have to face the awkward experience of dealing with a client who won't cough up the cash. Whether they continually pay their invoices late (stuffing up your cash flow as a result) or blatantly refuse to pay, there are options available to handle even the stickiest situations.

### Common disputes between tradespeople and clients

Most disputes between electrical contractors and clients occur because:

- There are delays in material delivery to the job.
- The client makes changes but doesn't want to pay for them.
- Design flaws cause issues on-site and require time and money to put right.
- Other subcontractors working on top of you disturb the integrity of your work.
- Clients don't pay their invoices on time, or at all.
- Personality clashes lead to tension.
- The client has unrealistic expectations about the job.

When you can see a situation escalating toward a full-on dispute, what should you do? Let's look at how to minimise problems in the first place, how to keep your cool when dealing with unpleasant situations, and what to do when non-payers pop up.

### Set your payment terms

First, it's important to make sure you've got a process in place and expectations are clear from the outset. While it might seem like extra admin (when you'd rather be getting on with the job), encouraging easy and timely payment will save you time and stress in the long run. It also helps to be transparent with clients about your processes from the outset.

The standard 30-day payment period is a thing of the past, with shorter payment terms now the norm. According to Xero, close to 75% of invoices now ask for payment within two weeks. If your terms are clear from the start, customers shouldn't have an issue.

**Get a down payment:** Asking for a down payment on a job is perfectly acceptable. Not only are down payments becoming the norm, but they also help put your customers at ease, as they feel it means their tradesperson is now more likely to show up.

You can ask for a 25-50% down payment on work less than R10 000 in value and between 5%-10% on larger jobs. Getting a down payment will make a significant difference to your cash flow. It also allows you to set some benchmarks around payment terms. For example, a down payment must be made electronically, in advance, seven days from quote acceptance.

**Consider getting a credit report:** One really easy way to reduce the chance of bad debts or late payments is to get a credit report done on any new SME customer you take on board. A credit report is a very cheap, quick and easy way to get some insight into who you're dealing with and whether or not they can be trusted to pay on time.

### Charge interest on invoices or incentivise prompt payment

It's perfectly legal to charge interest on an overdue invoice that accumulates daily after the due date. Alternatively, you could try



incentivising early payment by giving a small 'prompt payment' discount.

Many people prefer to pay by credit card these days, because it enables them to collect rewards. This is great, as it means you can literally get cash in the bank on the same day you finish a job. Better invoicing is done faster, online and with the help of invoicing software.

### Decide whether partial payments work for you

Depending on your trade or the job at hand, you might consider partial (or staggered) payments. This is particularly useful if you're having to fork out large amounts of cash for materials at the start of a job.

### Send reminders

Set up automated reminders to send the day before invoices are due. Use automated reminders so you can see when your customers receive, view and take action on your quotes and invoices.

When you're sending out lots of invoices every week, it's easy to forget which ones have been paid and which haven't. Chasing up unpaid invoices often falls to the bottom of the pile when you're struggling through hours of paperwork each night. Luckily, if you use accounting software like Xero or Quickbooks, you can pull out and notify late-payers with the touch of a button.

For example, in Xero, you can automatically see your debtors on a projected graph right on your dashboard. This means you can see in advance when lots of payments are supposed to be coming in, and also who you should be chasing up.

### Follow up with a phone call

Email or SMS reminders are easy to ignore and can sometimes be innocently missed. While picking up the phone might feel awkward at first, pitch it as a follow-up on the work you've done – and a friendly reminder that payment is overdue. Try getting clients to pay by credit card or internet banking while you're on the phone, and follow up your conversation with an email confirming what you've discussed. That way you've got it in writing should you need it.

### Handle disputes professionally

You want the best possible outcome for your trade business and keep your clients happy at the same time. Whether that means

simply getting paid what you're owed or solving sticky situations like unrealistic expectations or unexpected delays, here's some solid advice on approaching disputes like a pro.

**Calm down:** In an ideal world, all disputes would be dealt with in a business-like way. However, it can be really difficult when clients, suppliers, or contractors are taking money out of your pocket, especially if the source of the dispute isn't your fault. It's human nature to get defensive.

That's why it's a great idea to let off any steam before dealing with the client. Talk it through with a buddy or partner so you avoid confronting the client or subcontractor with all guns blazing. If you're struggling to keep your cool around a client, then walk away and calm down. Tell them you'll contact them later with a potential solution. Once you're away from them, then you can vent.

**Get your facts straight:** Get to the bottom of the issue. Dealing with any dispute means wrapping your head around the problem and checking all your records for the job. You need to see what's gone wrong, and how. Talk to the team members who dealt with the job and make sure you get as full a picture as possible.

**Get professional advice or mediation:** If you're part of a trade association, you can access advice on what process to follow. Some trade associations also provide mediators to work with you and the client to agree on the way forward. If yours doesn't provide a mediator, you can engage one independently. The mediator will listen to both sides of the story, define the crux of the dispute, and then present settlement options.

Neither party is legally obligated to accept the mediator's ruling or settlement terms, but at this point, your only other option may be court, and that can be expensive and disruptive to your business.

Sometimes, the best solution for a dispute is not about proving you're right, but about giving your client a solution that satisfies them, without disrupting your business or ruining your good name.

If at all possible, try to work things out with the client. Offer a compromise – most of the time, people are perfectly reasonable.

Once they've had time to cool down, they're happy to accept a compromise instead of escalating the issue.

Calmly and rationally explain your side of the story, and try to understand their side, and what they want the outcome to be. See if you can meet somewhere in the middle.

### Last resorts to get what you're owed

If you're still struggling to receive your money after it's due, then you've got the right to act. Here's where to start:

**Offer payment by instalments:** If you're feeling big-hearted and your cash flow can take it, you could offer payment by instalments. Something like 50% now and 50% the next month could work. Be warned – this can create extra admin and extend the non-payment pain.

**Fire a warning shot:** Assuming the client will no longer be a customer of yours (as this is a relationship-killer), a formal letter issuing a seven-day payment request before taking further action might just nudge things along. This is also called a letter before action (LBA) and is legally required before passing the debt collection on to a third party.

**Engage a debt collection agency:** Debt collectors typically work in two ways – either by assuming your debt (buying it off you) or working on your behalf for a fee. Depending on local laws, the agency's fee may even be partly or completely paid for by the customer. While debt collectors have to abide by legal guidelines, their success rates vary – so it's worth shopping around to find one that is the right fit for your business.

**Go legal:** Depending on the amount of money you're chasing, speaking to your lawyer or the small claims court are the last remaining options. Before you can commence any legal activity, you need to show you've done everything you can to collect the debt. This includes using a debt collector, so it's important to try that first.

### Protect yourself first, then call for back-up

Disputes and non-payment are typically the worst part of running your own trade business, and you'll probably have to deal with them at some point. It's important to have robust processes in place upfront to keep these to a minimum.

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



## Challenges and opportunities: What electrical contractors can expect in 2023

As another new year gets underway, **Sparks Electrical News** looks at the year ahead for local electrical contractors, picking apart the potential challenges and opportunities you will be faced with this year.

### Challenges

**Load shedding:** As you work in an industry where electricity is the core focus, the mere presence of load shedding makes an electrical contractor's job that much harder. How can you provide a CoC when the client has no electricity for you to check?

While it can be a demoralising situation, the EskomSePush App, an application that monitors the current Eskom loadshedding status and notifies you if the power is scheduled to go off in the selected areas, can prove invaluable when planning your day's work. While Eskom is likely to, and often does, shift between stages at a moment's notice, knowing whether or not you will have power at a client's home or business when you arrive can save you both time and money.

**Petrol price:** Because a career as an electrical contractor is a mobile service, the petrol price definitely has an impact on the pocket. Whether you are a one-man-band or have a fleet of electricians hitting the road, serious petrol price hikes are not good for the bottom line. At the time of writing, a big drop in petrol and diesel prices was expected for January. According to the latest weekly forecast from the Central Energy Fund, petrol prices were anticipated to come down by over R1.50, while diesel could be cut by a much larger R3.50. The main driver behind the lower prices is a huge drop in the international product prices for petroleum, which are guided by global oil movements.

Looking ahead, global oil prices have continued to drop significantly. According to Bloomberg, crude oil remains on track for its first back-to-back quarterly decline since mid-2019 as the demand outlook soured and thin liquidity exacerbates price swings into the year-end.

"Investors are also weighing the fallout from the \$60-a-barrel price cap imposed by the G7 (Group of Seven) and European Union on Russian crude to punish Moscow for the Ukraine invasion," it said. Some events are supporting a case for greater oil demand – such as crucial North American pipelines being shut and China slowly moving away from its zero-Covid policies – however, these are not enough to reverse the trend. Additionally, a surge in Covid cases in China is spurring concern about consumption over winter, with industry consultants saying that the sudden lifting of restrictions in the country could pose downside risks for oil demand.

Meanwhile, the South African rand continues to trade favourably against the US dollar, despite volatility and weakness due to ongoing political uncertainty. This uncertainty persists, with the African National Congress heading into election territory and Cyril Ramaphosa's future as the leader of the party not guaranteed – both not great for long-term oil prices.

Abroad, consumers have been warned to expect fuel prices at the pump to remain high into the new year due to disruptions to Russian oil supplies and as refineries struggle to meet demand recovering from the pandemic. However, the pressure

should ease in the second half of 2023 when several new large refineries including in the Middle East are expected to start up. For now, record petrol and diesel prices in the United States, Europe and elsewhere have cooled global oil demand by around 1 million barrels per day (bpd), roughly 1% of global demand.

The takeaway from this? While it is hard to predict, fuel prices look to remain relatively high throughout 2023. Proper planning of your routes, making sure you do the job correctly the first time around and driving more conservatively could help you to spend less in 2023 on petrol.

**Retirements:** Another pressing issue that adds to the construction industry problems in 2023 is the retirement of aging boomers, the inflow of inexperienced workers, and the skilled labour shortage. Inexperience can also be a factor in an increasing number of injuries and accidents on jobsites. These factors must be addressed, with boomers primarily being managers, and their replacement is vital.

**Cost of materials:** The rising cost of materials will continue to be the most significant challenge facing UK electricians in 2023, according to a new report assessing the confidence of the industry. While the study was focused on UK-based electricians, we are worried that the same problem will be evident locally this year.

The study surveyed electricians about their views on the year ahead and found that, while there is a general acceptance that the landscape is difficult, many are cautiously optimistic.

Just over a quarter (26 percent) of electricians think their companies will be more successful next year than they were in 2022, and one in ten (10 percent) believe the industry will grow stronger over the coming months. Furthermore, more than a third (37 percent) of electricians think they'll be better off financially in 2023, which could explain the planned recruitment drive. Just over one in six (17 percent) are looking to expand and hire new staff, representing a slight increase from last year (15 percent).

However, with widespread societal issues, such as the cost of living crisis, some electricians are naturally more wary about the next 12 months. All the respondents acknowledged that there will be challenges, and top of the list is the rising cost of materials (48 percent).

Simply getting hold of materials is also a worry (21 percent), as is the ability to recruit people to fill job vacancies (25 percent).

Dominick Sandford, Managing Director at ElectricalDirect, said: "It's been a really tough couple of years, both nationally and for the electrical industry, but while many challenges remain, it's encouraging to see that some electricians are feeling positive about the future as we approach 2023.

"However, it's concerning that some of the most dominant issues, such as the rising cost of materials, have not been addressed in the 12 months since we last published our report, and in fact are now starting to affect more people in our industry. We hope that the situation will improve in 2023, as it's clearly a major worry for many electricians."

### Opportunities

**Solar:** With load shedding here to stay will



With load shedding here to stay well into 2023, and more than likely far beyond, solar power and renewable energy will continue to grow this year.



The rising cost of materials will continue to be the most significant challenge facing UK electricians in 2023.

into 2023, and more than likely far beyond, solar power and renewable energy will continue to grow this year. Mounting solar panels on a rooftop is just one, and arguably the simplest, part of a PV installation. Any part of the installation that flows from the inverter – that converts direct current (dc) electricity generated by the solar panels to alternating current (ac) electricity used by the electrical grid – must be done and signed off, through a Certificate of Compliance (CoC), by a qualified and registered electrician.

To become a registered professional electrician in South Africa, you must pass a trade test, have an NQF level 3 minimum that includes a Technical Senior Certificate, and must pass the national exam on SANS 10142-1. You'll also need a Wireman's License and need to be registered with the Department of Labour (DOL) to be legally recognised as a qualified electrical contractor.

Being a qualified and registered electrician is critical if you're hoping to become an independent contractor or start your own company that will fulfil all aspects of a solar installation, from mounting right through to the final CoC.

If you're looking to work for a company that already employs a qualified and registered electrician – who will effectively oversee all the work being done and is responsible for sign-off – then obtaining a

Solar PV Service Technician qualification is a quicker way of entering the industry for some hands-on experience.

Based on the need for national training offering support to the growing renewable energy industry, the Solar Photovoltaic Service Technician NQF Level 5 was registered with the South African Qualification Authority (SAQA) under Qualification ID 99447 in December 2016.

The qualification consists of four modular part qualifications: Solar PV Mounter, Solar PV Installer, Solar PV Technician, and Solar PV Service Technician. Enrolment requirements include a minimum of Grade 11 (NQF Level 3) passed with Maths and Science as subjects.

While you don't need to be qualified as an electrician to become qualified as a Solar PV Service Technician, both qualifications are important steps in the PV GreenCard programme.

The PV GreenCard programme is a quality assurance initiative led by SAPVIA that provides installers with accreditation. While participation in the programme is voluntary, for now, multiple municipalities and business customers are buying into the concept, with some requiring installers to be accredited.

PV GreenCard endorsed service providers form part of the SAPVIA PV GreenCard online database, which can be searched by potential clients. The five-Day



With crime stats painting a bleak picture for many South Africans, the security sector will continue to be a thriving business.



The cost of refilling your work vehicle is unlikely to fill you with joy in 2023.



Why not diversify your offering this year and upskill yourself through smart home installation training?

PV GreenCard Installer Training Course follows the exit outcomes of the curriculum specific to the Solar PV Installer Part Qualification.

The two-day PV GreenCard Training includes theoretical as well as practical training where candidates are required to mount PV installations on a simulated roof environment. The purpose of this training is primarily to ascertain the competency of installers and vet their abilities to gain access to the PV GreenCard quality mechanism, according to SAPVIA.

SAPVIA-accredited installers can issue PV GreenCards to their clients in both physical and digital formats. These documents detail the specifications of the solar installation and assure that the installation has been completed to the required standard.

To qualify for the PV GreenCard programme, installers must provide company registration details, proof that they're registered as qualified electricians with the DOL, proof that they have completed a five-day PV installer course and undertake a two-day theoretical and practical assessment.

"The PV GreenCard Programme focuses on education, skills development, and training to build installer capacity as well as improve standards development and compliance in line with international best practice," explained SAPVIA.

**Smart houses:** The term 'smart home' can be heard more and more frequently, and this is not just by people working within the electrotechnical industry. This shift is the result of consumers being confronted with products to turn their home into a smart home from all angles. There is a whole host of smart gadgets available for the house – smart thermostats, smart lights, smart TVs, smart kettles... the list goes on.

In the last five years, the visibility and awareness of smart technology has increased dramatically but, unfortunately, the vast amount of information that is now flooding the Internet has not necessarily lead to a better understanding of what a smart home actually is. There are still many misconceptions, doubts, and even fears, about the benefits of smart technology. In this article, we aim to provide some clarity and explain how electricians and electrical contractors are perfectly placed to step into this emerging market to grow their business by offering smart home services.

To set yourself up as a smart home installer and to be successful you don't just need the technical skills, but also to know what your customers actually want. It's no good specialising in installing smart fridges that order the milk if nobody wants them, and believe us, they don't!

Recent consumer research revealed that

71 per cent of homeowners would sacrifice another feature in their home – such as a second bathroom or summer house – for smart home automation. Heating/cooling, lighting and security are the top three key growth areas for the so-called digital homes market.

A surprising result – given all the smart home gadgets that are targeted directly at the consumer and the DIY market – is that the report also revealed that 66 per cent of homeowners are looking for a professionally installed system.

As an electrician or electrical contractor, you are in the perfect position to capitalise, since you already have a sound understanding of electrics. You can build on this foundation to learn new skills and expand those aspects of a smart home you offer as you go along.

**Security:** With crime stats painting a bleak picture for many South Africans, the security sector will continue to be a thriving business in 2023. As such, the Electrical Contractors Association have gained capacity to help its members diversify their service offering with Electric Fencing as an offer to clients. The Energy and Water Sector Education and Training Authority (EWSETA) has given the ECA(SA) accreditation for Electrical Fence Training.

This is an opportunity for members to offer clients an extra service and access another source of income for their businesses. In tough economic times, when domestic and business security is of paramount importance, being able to contribute to the security of your clients and doing business whilst at it, can only be good for your business and may help your business grow and survive tough economic conditions. However, while you probably can do very little about the midnight cabinet reshuffle, you can find new clients – and new money – for your business. Your existing clients do not have to use another supplier for this service and the ECA(SA), believe clients are much more likely to trust his/her trusted electrical contractor to do an electric fence installation than another person, who may do the electrical installation but cannot issue the related CoC.

**Municipal jobs:** City Power deployed 52 newly appointed electricians to lessen the entity's reliance on contractors and foster area-specific accountability in the Johannesburg power network as of December 1.

The electricians will be posted in problem-prone sections of the City Power network and assume direct responsibility for sections of the grid. Whereas previous contractors were haphazardly employed by City Power to rectify outages and resolve long-term issues, the newly appointed electricians will foster a better understanding of issues and build up a body of knowledge specific to their area.

MMC for Environment and Infrastructure Service, Michael Sun said this will enable more sustainable solutions to short and long-term issues based on the in-house electricians' region-specific experience. "This will save City Power millions of rands annually in contractor fees and ensure better accountability in the work undertaken on a day-to-day basis."

More electricians will be in-sourced by City Power in the coming months with the aim that a total contingent of 300 electricians to be deployed by mid-2023.

"This is part of a grander strategy to decrease the number of emergency repair funds spent on labour as opposed to repair components and equipment needed to sustainably repair and rehabilitate infrastructure. The plan has been six months in the making with over a thousand applications being received for the electrician posts. I want to congratulate the new team of City Power electricians, many of them young people and women that will lead a new age of accountability and quality craftsmanship within City Power," said Sun.

**Resolve to change with the times:** Innovation in the electrical industry is happening very fast. From technology to new installation techniques to changing regulations, it's more important than ever for electrical contractors to be adaptable. Keep on top of industry trends, best practices and new equipment to keep your company ahead of the game. Joining an association or attending tradeshow and networking events can be a great way to keep your business up to date on the information you need to know to continue your growth.

Change is difficult, but losing business to a more progressive competitor is a much worse outcome than getting outside of your comfort zone. Now, more than ever, electrical contractors need to rely on their people, equipment and technologies to make absolutely sure the job is being done right the first time. There's no more time to waste time.

## Type 2 push-in surge protection

The VAL-MS PT surge protective device from Phoenix Contact is its first type 2 protective device with push-in connection technology. It is available for the globally widespread voltage level of 230/400 V AC and is therefore particularly well-suited for protecting power distribution in sub-reticulation systems.

If the distance between the upstream surge protection and the components to be protected is greater than 10 metres, the IEC standard 60364-5-53 recommends additional surge protection. It is now significantly easier to realise this recommendation by installing the VAL-MS PT surge protective device, which is available both with and without remote indication contact.

Push-in connections enable fast installation and uniform connection technology in the entire control cabinet. Testing the recommended nominal tightening torque is a thing of the past. The protective device features two terminal points per position, enabling user-friendly through-wiring of the feed-in lines.



This also saves additional installation material. Both flexible and rigid conductors up to a maximum cross-section of 10 square millimetres can be connected. A voltage test can be performed directly on the test point on each position. The protective device also features an optical status indicator integrated into the plug that displays the operational readiness of the product to the user.

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

## Lightning basics: Lightning protection terms

**Bonding:** An electrical connection between an electrically conductive object and a component of a lightning protection system that is intended to significantly reduce potential differences created by lightning currents.

**Bonding conductor:** A conductor used for potential equalization between grounded metal bodies or electrically conductive objects and a lightning protection system.

**Cable:** A conductor formed of a number of wires stranded together.

**Catenary Lightning Protection System:** A lightning protection system consisting of one or more overhead ground wires (also known as 'overhead shielding').

**Conductors:** Devices defined by the LPI-175 as suitable to carry lightning current or make bonding interconnections.

**Fastener:** An attachment device used to secure the conductor to the structure.

**Grounding electrode:** The portion of a lightning protection system, such as a ground rod, ground plate, or ground conductor that is installed for the purpose of



allowing lightning current flow into the earth.

**Labelled:** Equipment or materials to which has been attached a label, symbol, or other identifying mark of an organisation that is acceptable to the authority having jurisdiction and concerned with product evaluation, that maintains periodic inspection of production of labelled equipment or materials, and by who's labelling the manufacturer indicates compliance with appropriate standards or performance in a specified manner.

**Lightning Protection System:** A complete system of strike termination devices, main conductors (which could include conductive structural members), grounding electrodes, interconnecting conductors, surge protective devices and other connectors and fittings required to complete the system.

**Listed:** Equipment, materials or services included in a list published by an organisation that is acceptable to the authority having jurisdiction and concerned with evaluation of products or services, that maintains periodic inspection of production of listed equipment or periodic evaluation of services, materials, and whose listing states that either the equipment, material or service meets appropriate designated standards or has been tested and found suitable for a specified purpose.

**Strike Termination Device (air terminal or rod):** A conductive component of a lightning protection system capable of receiving a lightning strike and providing a connection to a path to ground. Strike termination devices include air terminals, metal masts, permanent metal parts of structures as described in LPI-175 and overhead ground wires installed in catenary lightning protection systems.

**Surge Protective Device (SPD):** A device intended for limiting surge voltages on equipment by diverting or limiting surge current that comprises at least one nonlinear component while remaining capable of repeating these functions.

**Transient:** A subcycle disturbance in the ac waveform that is evidenced by a sharp, brief discontinuity of the waveform. It may be of either polarity and may be additive to, or subtractive from the nominal waveform.

**Voltage Protection Rating (VPR):** A rating (or ratings) selected by the manufacturer based on the measured limiting voltage determined when the SPD is subjected to a combination waveform with an open circuit voltage of 6 kV and a short-circuit current of 3 kA.

**Zone of Protection:** The space adjacent to a lightning protection system that is substantially immune to direct lightning flashes.

Enquiries: [www.lightning.org](http://www.lightning.org)

## eBook explores surge protection design challenges

Mouser has joined forces with Bourns as the title sponsor of a new eBook titled 'How to choose the right surge protection technology'.

The eBook enlists industry experts from Bourns and other leading companies to help answer some of the most common questions regarding surge protection and its application in sophisticated electronics systems. It offers step-by-step insights into how to choose the right surge protection technology for a given application and features several charts and tables to help define and clarify the different types of surge protection technology.

Each article features convenient links to crucial Bourns' surge protection products, connecting designers directly to solutions that can provide an immediate benefit to their electronic designs. These include the recently launched hybrid IsoMOV varistors that combine surge protection with an integrated gas discharge tube (GDT) isolation structure, as well as automotive-qualified TBU-CA-Q low-capacitance, bidirectional, high-speed protection components that guard against faults caused by short circuits.

Download the eBook: [www.mouser.com/news/bourns-surge-technology/bourns-surge-protection-ebook.html#p=1](http://www.mouser.com/news/bourns-surge-technology/bourns-surge-protection-ebook.html#p=1)



## Load shedding damages gate motor and alarm system batteries but lithium technology is about to change that

As our constrained power generation system once more dominates discussions and affects plans and traffic routes, South Africans will be all too aware of another inconvenience of load shedding, one which has potentially grim implications – battery backup for electric gate motors and alarm systems run the risk of becoming severely compromised during and after bouts of load shedding.

"Think about when your car has stood for a long time and your battery was allowed to run completely flat," says Revov MD Lance Dickerson. "A completely flat battery can be recharged but its lifespan has been compromised. Many of us would have found ourselves in a situation where despite the battery being recharged, its performance kept downgrading to the point where we needed to replace it sooner than later," he says.

Thankfully, advancements in technology have changed the way batteries are made. Lithium iron phosphate batteries are superior to lead acid batteries in every metric. While those who look exclusively at the crude measure of shop shelf prices would disagree, one only needs to weigh the performance, lifespan and safety profile of lithium iron phosphate batteries against their archaic lead acid counterparts to appreciate the value for money. In a 12 V and 24 V format, if built in series, lithium iron phosphate batteries are a more economical investment in the medium to longer term while keeping mission-critical applications – such as security and monitoring systems – up and running during power cuts.

"These benefits, which are already plain to see in renewable installations and uninterrupted power supply (UPS) systems, are poised to take the pain out of a host of 12 V battery applications, not least battery backup for electric gates, alarm systems, communication systems, off-site installations and even camping and fishing uses," explains Dickerson.

"This is why we have introduced portable LiFePO and 2nd LiFe 12 V solutions to the market. In 2023 there is absolutely no reason someone has to accept continually deteriorating battery performance in key areas every time there is a power outage," says Dickerson.

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



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## The importance of power quality

In modern times, the supply of electrical energy is crucial for everybody, including businesses, households, medical facilities, and datacentres. It isn't just availability that's important, but also getting the best quality supply to your facility. Power supply companies, power grid operators and municipal utilities have a duty to ensure the reliable and seamless operation of power grids. Damage must be prevented within their network but, above all, in customer installations.

- Thus, power supply companies have a responsibility to:
- Ensure power supply is guaranteed without disruption.
  - Ensure the best possible quality of power supply across their network.
  - Prevent failure in their grid or damage to the customer's installations.
  - To comply with the relevant power quality standards.

This task of supplying good quality power is also becoming increasingly difficult as grids begin consisting of multiple decentralised modern renewable energy sources. The supply of power by means of solar photovoltaics or wind turbines is subject to daily and seasonal fluctuations in weather conditions, which often has an impact on the grid or local supply system.

Furthermore, it becomes difficult for the power company to supply the highest level of power quality if the load demand puts strain on the supply system i.e., inductive loads by means of large motors, etc. Fluctuating consumption can also damage supply sources and lead

to problems on the consumer's side. Heavier irregular loads, for example, heat pumps or charging systems for electrical vehicles, contribute to the change from typically more constant power loads.

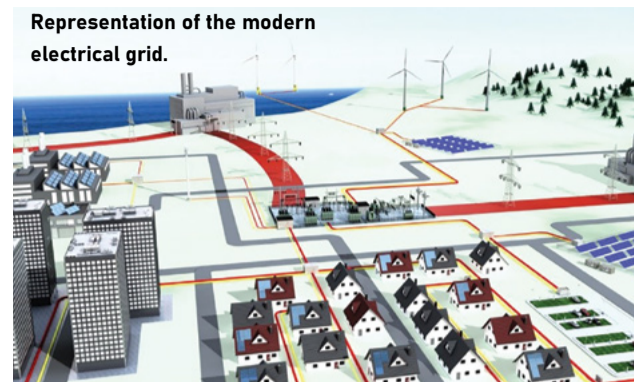
The increased use of sensitive electronics also brings with it new requirements. Digitalisation, Industry 4.0, smart homes and the Internet of Things enlarge the proportion of electronic systems in the power grid, in commercial and industrial installations, and in the private residential sector. These electronics react especially sensitively to the slightest disruption to power quality.

Site inspections often reveal scenarios where equipment has been damaged due to poor power supply quality or where fluctuating loads have led to damage of power providers' equipment. The exact causes of such failures can only be determined if there is a clear overview of the quality in the power grid. It is therefore important to consider employing a power quality monitoring device, which could help detect failures early, lead to quick preventative action and assist in improving overall health of the electrical system.

Modern power quality measurement devices can measure various factors in the power quality field, and it is important that the device complies to the relevant South African standard, i.e., SANS 61000-4-30, for accurate reference measurements.

Within this standard the certification known as "Class A" is given to power quality measurement devices that are highly capable due to passing all the given requirements. This class of devices is often also required for legal and trade purposes. Typically, the following should be considered:

Representation of the modern electrical grid.



Example of a smart PQ measurement device capable of measuring surge and lightning impulse.

CONTINUED ON PAGE 10

**DEHN**  
**PROTECTS.**

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## The Pepperl+Fuchs M-LB-5000 surge protection system

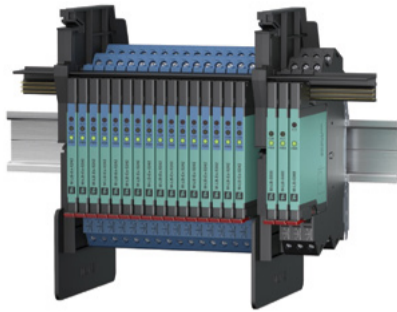
Surge voltages have many possible causes. Electronics can receive sustained damage from lightning strikes, transients caused by switching operations and load drops and interruptions to the supply. There are other effects in addition to the direct destruction of components, in particular the risk posed to plant availability and the resulting consequences, such as production downtime, which drives operating costs up. Surge protection systems must therefore form an integral part of process engineering plants. In addition, current standards such as EN 62305 (SANS 62305) require that the effectiveness of these systems be checked regularly. Up to now, this check has usually been carried out manually on-site, which is costly for large plants in particular and requires trained personnel and tools such as a test kit. However, the test results do not give any indications of prior damage to the protection module and its state of wear. It has previously only been possible to rate the tested devices as 'good' or 'bad'. To meet the different safety requirements of the signal line market, Pepperl+Fuchs offers two surge protection systems with different functions.

### Surge protection with condition monitoring

The M-LB-5000 surge protection system with condition monitoring function monitors signal lines automatically and continuously. The patented diagnostics use a special algorithm to detect the different load situations that cause the surge protection system to wear. This includes counting the number of times the gas discharge tube has ignited, detecting the silicon temperature of the suppressor diodes and measuring the interior temperature of the surge voltage protection module.

When the protection module has reached 90% of its useful life, this is indicated by a yellow diode. The protection modules are therefore replaced neither too early nor too late: replacing them too early leads to an unnecessarily high replacement frequency, while replacing them too late leads to the plant having phases without sufficient surge protection if defective modules are not replaced immediately. This optimises the availability of the surge protection functionality and of the plant and at the same time minimises maintenance costs.

The M-LB-5000 modules are mounted on a standard DIN mounting rail. The devices each consist of a base module and the actual protection module. The system also has an insulating partition to maintain clearance when mounting Ex and non-Ex modules on a DIN mounting rail. All modules have a width of only 6.2 mm and allow simple commissioning without special aids. In addition to the protection and base modules, there



are three function modules. The maintenance module reports when a yellow LED lights up on at least one protection module, indicating that this module should be replaced. The fault module indicates when at least one device has a fault (red LED) and needs to be replaced directly. The third unit is a power module that powers the protection modules via the power rail. The error messages are also sent to the function modules or the control panel via the power rail.

### Terminal block with surge protection

Pepperl+Fuchs has developed the M-LB-2000 for applications requiring only minimum specifications, plus loop connect. It has a form factor very similar to the M-LB-5000 and is designed to be attached directly to the DIN mounting rail. The main differences are that the module cannot be diagnosed or replaced without interrupting the signal line. A loop disconnect function is achieved when the module is plugged in via two easily accessible switches on the front.

The M-LB-2000, which is also only 6.2 mm wide, not only saves a lot of space in the switch cabinet, it practically replaces the terminal block with surge protection. This means that disconnect terminal blocks are no longer necessary, saving costs. The certificates range from ATEX, IECEx, Zone 1 and SIL 3.

### Conclusion

The M-LB-5000 surge protection system's diagnostics use a special algorithm to detect different load situations and send a signal when the protection module has reached 90% of its life cycle. This significantly increases the efficiency of the protective function and keeps maintenance costs to a minimum. The modularity of the device enables the protection module to be replaced without tools and without interrupting operation.

The M-LB-2000 with loop disconnect function is designed for significantly lower requirements in surge protection. With a width of 6.2 mm, it saves just as much space in the switch cabinet and can be used as a replacement for the terminal block with surge protection.

Enquiries: [info@za.pepperl-fuchs.com](mailto:info@za.pepperl-fuchs.com)

## Beyond the surge protection device



Around 25% of the world's electrical energy is consumed by electric motors in industrial applications. However, as John Mitchell, global business development manager at supply, installation and repair specialist, CP Automation explains, installing variable frequency drives (VFDs) and surge protection devices (SPDs) are not the final steps in creating ultimate cost-efficiency.

A VFD controls the frequency and voltage supplied to an electric motor. By implementing VFDs, many businesses experience an increased bottom line due to increased efficiency and reduced energy costs. However, the VFD is not without its problems – its normal operation can cause negative effects.

Issues arise with VFDs due to power fluctuation. This could be caused by an anomalous event such as a lightning strike to the grid, or by lower-level transient surges caused by VFDs countless times a day. These transient surges are a change in fundamental frequency in a microsecond time frame. If not accounted for, they can lead to confusion in electrical systems, such as false zero crossings, false triggering of diodes and timing issues.

A basic SPD may be used alongside a VFD to mitigate the damaging impact of high-power surges, yet many users are still faced with unexplainable lockups, downtime and even some failures in surge protection caused by low level switching transient events.

This is because typical SPDs are voltage triggered only. Their clamping will only occur at a set point above or below the amplitude of the sine wave and will therefore not act upon low level switching transient events.

While the sine wave has remained the same since the late 1800s, the sensitivity of the equipment that is connected to the grid is now much more sensitive. It's time to bring surge protection up to speed. It's clear that standard SPDs are not doing enough to protect valuable systems, whether this is in an elevator, factory conveyor or petroleum production equipment.

The next step is to eliminate these low level switching transient events. Using surge and transient protection systems such as the SineTamer, offers a new opportunity to protect valuable assets from the transient events that can occur millions of times per day. The frequency attenuation network of SineTamer does this by monitoring the frequency, not just the voltage.

Some businesses have already made this investment. In fact, one plant manager at a packaging company was experiencing multiple electrical failures across seven plant areas related to programmable logic controllers (PLC) and power supplies. After implementing SineTamer, the failures decreased from an average of 55% to zero.

For too many years, investments made in process technology have failed to reach their promised results, through no fault of their own. It's simply been due to the electrical environments in which they were placed.

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

CONTINUED FROM PAGE 9

## The importance of power quality

- Detailed amplitude values of the sine wave.
- Frequency (which should be 50Hz in South Africa).
- Flicker (a measurement that indicates flicker in light sources).
- Voltage drops or overvoltage.
- Interruptions in supply.
- Asymmetry (where sine waves are shifted).
- Harmonics
- Sudden voltage changes.

In recent developments, some manufacturers have gone beyond these requirements and created devices that can measure switching surges, lightning induced surges (8/20µs) and lightning impulse currents injected into the electrical system (10/350µs). This is typically done by measuring impulses on the earth cable of the electrical system and is useful for detailed root cause analysis, assisting with insurance claims when damage to the system was caused by elements outside the owner's control.

Detailed overview of power quality within an electrical system is measured by means of PQ measurement devices and can prove to be beneficial for the longevity of equipment, ensuring up-time within a facility during production and assisting in keeping the power grid stable. Moreover, being able to monitor and react to power quality deviations remotely with the use of an internet connected smart PQ measurement device is convenient and reduces delays. Considering the challenges in increasingly modern grids, it becomes clear how important smart power quality monitoring is during electrical design and specification for new installations.

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



## Approval for halogen-free TPE cables

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

The independent organisation Underwriters Laboratories (UL) is one of the most important authorities in the USA in terms of product safety. It has been testing components of machines and systems since 1894 to see whether they are suitable for industrial use. Their seal is one of the prerequisites for a successful market entry in North America. Fire protection is a key decisive criteria. This is because, according to the US National Fire Protection Association (NFPA), machine fires are the fourth leading cause of fires in industrial environments in the USA, closely followed by fires caused by electrical factors. "That is why we are particularly pleased that igus has now become the world's first manufacturer to receive a UL seal for

halogen-free TPE cables," says Rainer Rössel, Vice President and Head of the chainflex cables business unit at igus. "The approval demonstrates to our customers that they have the safety aspect covered with chainflex high-end TPE cables."

### Fire protection can also be achieved without halogens

For this certification, the igus engineers had to do a lot of persuading. Up to now, the flame retardancy of cables has been the key factor in obtaining UL certification for fire protection. Approval is therefore only granted to products containing flame retardants such as chlorine, fluorine or bromine. These additives increase the flame retardancy.

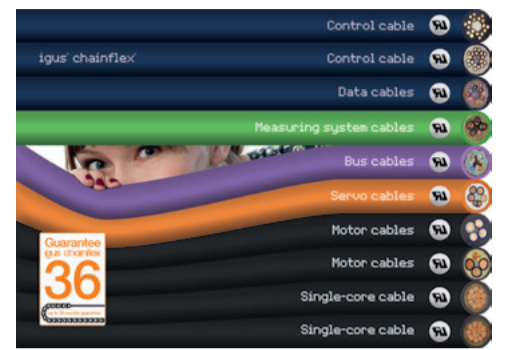
However, so far it has not been taken into account that the flame retardants generally change the chemical structure of the jacket and reduce the mechanical load-bearing capacity. Therefore, igus starts much earlier in the process: The cable specialist focuses less on preventing a fire from spreading, but rather on how the cable itself caused the fire. The TPE jacket compounds from igus are extremely resistant to mechanical

loads as well as external influences. They can therefore be used in a wide range of applications: in small installation spaces of up to 4xd, on highly dynamic, short travels with accelerations of 100m/s<sup>2</sup> or on long travels in a temperature range from -35°C to +100°C. At the same time they are extremely media resistant, even with special organic oils.

In all of these energy chain applications, the halogen-free TPE jacket compounds from igus minimize premature aging of the outer jacket by a factor of up to 10; when compared to the same materials containing flame retardants. A decisive cause of fire is reduced. This is because if the jacket does not break the cable cannot cause a fire because a reduction in the cross section of the cores is impossible due to the non-existent jacket break. An argument which finally convinced the UL.

### Flame retardancy of TPE cables is no longer the measure of all things

With these measures, igus makes a significant contribution to increasing machine safety. The long-term flexural strength and service life of chainflex cables in the e-chain have been proven by



numerous practical tests in the in-house igus test laboratory – and not just for TPE cables. "So far, customers have already had the opportunity to choose from 1,044 chainflex cables with UL approval," Rainer Rössel points out. "With the new certification, there are now more than 200 TPE cables, so we can offer an almost complete UL certified product range." Customers in Europe benefit from this by being halogen-free, as do those who build machines for the North American market, where UL certification of the individual components is the required rule.

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

## CCG sees great success with its new range of cable cleats

The international standard governing cable cleats used in electrical installations is IEC 61914:2015. In this standard cable cleats are defined as "devices designed to provide securing of cables when installed at intervals along the length of the cables". Simply put, cable cleats are used to secure, fix and route electrical cables in the positions required in an electrical installation. They can consist of single or multiple parts, plastic or metal material and include some sort of provision for securing to a surface or structure. Mounting surfaces that may be specified include; ladder, tray, strut, rail, and beam.

Cable cleats should be designed to ensure that cables are fixed, supported and routed in a manner that provides safe operation and reduces the risk of damage or injury in the event of a short circuit fault, emergency or accident. Improper clamping of cables can result in loss through unnecessary downtime or even injury and death. Cable cleats should at a minimum:

- Be rated for the specified cable OD.
- Provide a means of securely fixing the cable.
- Have adequate strength to secure the cable.
- Prevent excessive cable movement and damage.
- Avoid chafing and undue stress in the cable.

### Cleat selection and how to specify cable cleats

**Cable arrangement:** The cable arrangement/configuration will primarily dictate the type of cleat required. Cable arrangements for 3 phase installations utilising single conductor cables are typically flat spaced, flat touching or trefoil. A parallel or flat arrangement of single core cables can be completed with a range of single or two-part cleats. Whereas a trefoil would require a trefoil type cleat.

**Cable type:** The type of cable being used, Single or Multi-core, as well as its Voltage Levels and Construction Low Voltage (LV), Medium Voltage (MV) or High Voltage (HV)} should be considered.

**Cable diameter:** Knowing the overall diameter of the cable (measurement across the entire cross-section) is essential in ensuring the correct size of cleat is selected. It is also required to calculate the short circuit forces that the cleat may be subjected to; this can be used to determine correct cleat spacing.

**Performance:** A range of factors will dictate the level of performance your installation will require. The size, weight and length of run of the cable and spacing will usually influence whether you require a polymer or metallic cleat. Things such as the support structure material and environmental conditions (corrosion) can also affect your decision of cleat material. Other factors such as project specification may require special provi-



Single cable cleat.



Trefoil cable cleat.



sion for performance in the event of a fire such as Low Smoke or Zero Halogen.

In summary, to correctly select they type of cleat you require you should be looking to obtain the following information;

- Calculate the system peak fault current.
- Confirm cable type and arrangement, including the overall diameter and manufacturing tolerance.
- Confirm the support structure type and material
- Consider any other environmental conditions and project specification requirements.

### CCG's range of stainless-steel single and trefoil cleats

Designed to restrain single or trefoil cables onto ladder tray or strut systems and manufactured from corrosion resistant, magnetic free, 316 stainless steel with LSOH and UV protected polymeric linings for cable protection. CCG's cleats are designed to withstand mechanical forces caused by fault currents of up to 180kA

CCG's range of cleats have an open hinge single bolt fastening system allowing ease of installation for a wide range of cables from 13mm to 128mm.

Despite only recently being launched worldwide, CCG's simple-to-use yet robust cleat range has already been chosen for use by the following customers:

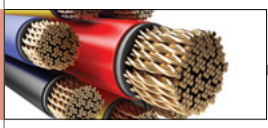
- SANTOS GLNG Upstream Gas Fields of Queensland Australia.
- Eureka Solar Farm – Queensland Australia.
- Whyalla Solar Farm – South Australia.
- Rhye Park Wind Farm – New South Wales Australia.
- Oki Tedi Gold Mine – Papua New Guinea.
- FMG Iron Port Hedland Export Hub – West Australia.
- SASOL Secunda petrochemical plant- South Africa
- Various Rustenburg Platinum mines.

Enquiries: +27 (0)11 394 2020, [info@ccgcablegland.co.za](mailto:info@ccgcablegland.co.za), or [www.ccgcablegland.co.za](http://www.ccgcablegland.co.za)

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**Single & Trefoil Cable Cleats**

- Used to restrain single and trefoil cables onto cable ladder, tray or strut systems.
- Corrosion resistant non-magnetic 316 Stainless Steel.
- UV Resistant LSOH Polymeric Linings
- Wide range 13mm to 128mm.
- Accessible clamping bolt allows easy tightening with a single tool.
- Open hinge system allows easy positioning of cables.
- Resistance to mechanical forces up to 180 kA.
- Tested and Certified to IEC 61914.



### See voltage and current on one screen without touching a wire!

**Comtest**, local representative of Fluke, is offering the Fluke T6-1000 PRO True-RMS Electrical Tester. It measures voltage up to 1000 V ac and current up to 200 A ac, all through the open fork and without test lead contact to live voltage. Users connect the black lead to ground with the included heavy-duty alligator clip, slide the wire into the open fork and can see both voltage and current at the same time. The T6-1000 PRO works with most wires up to AWG 4/0 (120 mm<sup>2</sup>), carrying as much as 200 A and 1000 V ac. It can even be used with gloves. The electrical tester will change how you do your job.

The T6-1000 PRO allows electricians to test in impossible places. Instead of pulling wire nuts, users just slide the open jaw over a single conductor. It's much faster and safer than working to find a metallic contact point. Plus, voltage and current measurements can be made at the same time. The T6-1000 PRO measures and displays both voltage and current at the same time, simply by sliding the open jaw over the conductor.

The T6-1000 PRO is equipped with Fluke FieldSense technology, which is a proprietary method of measuring the actual voltage value without making live electrical contact. Unlike other non-contact voltage testers and detectors, the T6-1000 PRO uses FieldSense technology to provide an actual voltage measurement. Users get measurements that are more reliable and more accurate than existing go/no-go testers.

Not having to probe live conductors also makes jobs safer. Since there is no need to

make electrical contact, the chance of human contact with an energized wire is greatly reduced. This also reduces the chance of making contact with the wrong conductor, which can produce unexpected results.

The T6-1000 PRO is especially designed for electricians working in potentially dangerous environments. Since users will almost always be wearing gloves or other PPE, the T6-1000 PRO is designed to use an external ground clip 100% of the time. In addition, the area where FieldSense technology measures voltage is extended further down the open fork. This means getting consistent, accurate voltage and current measurements without touching a live wire is easier than ever before.

**Enquiries:** [sales@comtest.co.za](mailto:sales@comtest.co.za). For more information on the Fluke T6-1000 PRO Electrical Tester, visit [bit.ly/2Xe0l9A](http://bit.ly/2Xe0l9A)



Fluke T6-100 PROs open-jaw application.



Fluke T6-100 PROs accessory – a rugged fabric holster with built-in belt loop that holds T6 and test leads.



Fluke T6-100 PRO showing on-screen voltage and current.

### Build optical cable solutions online

**Samtec** users have been able to build a variety of different cable products online through various software applications that have been released over the past few years, but until now, a solution to build active optics cables on [samtec.com](http://samtec.com) was not available.

With the release of the new Active Optics Solutionator, users can now build an active optics cable online from beginning to end, in under a minute. By answering a single question, users will start to see a list of qualifying Samtec optical products that fit. Users then have the option to answer further questions to narrow the search field.

Users can choose from PCIe, temp range, channels, or data rate to begin their search, which then brings up a list of products that fit. Clicking on a result will then launch the configurator tool, which allows customisation of the product selected from that point.

Once selected, the user then has the choice of cable end options. Once finished, a 3D model can be instantly downloaded and a quotation can be requested.

**Samtec's latest solutionator can be accessed by visiting** <https://www.samtec.com/optics-solutionator>

### Hidden costs of poor-quality cable accessories

By Clive Maasch, Tank Industries

**T**here is an Afrikaans saying: 'Goedkoop is duur koop', which translates to 'buying cheap is buying expensive'. This is particularly relevant in the power sector, where getting it wrong by using inferior products and unreliable suppliers can incur massive additional costs.

As sub-Saharan Africa races to address the power deficit, we will see a growing number of power facilities being rolled out across the region. As with any sector boom, a wave of suppliers will enter the market looking to cash in on the growth. Some of them will be fly-by-night companies offering inferior products at bargain basement prices.

Contractors and installers looking to boost their margins should view these suppliers with caution, however. On the face of it, cutting the cost of cable and accessories may appear to be a good way to cut the project costs and win the tender. But in the long term, there are hidden costs associated with partnering with untrusted suppliers.

For example, should a supplier lack nationwide technical support resources, an installer might lose days on the installation while awaiting technical back-up from the vendor. If the supplier has insufficient cable and accessories in stock, an installation could be delayed for weeks awaiting an order from overseas.

These delays can impact on the switch-on deadline and cause the contractor to incur high penalties.

If the cables and accessories are sub-standard, systems failures a year or two down the line impact the contractor's reputation, the utility's service delivery and the end customer's experience – all of which result in additional costs.

Should the supplier be unable to supply product training for staff, the contractor, utility and local authorities could suffer costly delays and future downtime due to faulty installation.

The most cost-effective power installation is the one that rolls out efficiently, on time, and operates



reliably for upwards of 15 years. Achieving this depends on a combination of industry-leading cables and accessories and a supplier who does more than just drop off products; but instead, actively partners with the contractor in ensuring a successful roll-out.

#### About Tank Industries

Tank Industries is the sole distributor for TE Connectivity's industry-leading Raychem products in South Africa.

Tank Industries, a market leader in low and medium voltage cable accessories, has a proven track record of supplying the South African power sector with TE Connectivity's industry-leading Raychem products. JSE-listed Reunert Group, Tank Industries fields the best niche technical skills and training available in South Africa and supports contractors nationwide with its expert technical support team and multi-million rand in-country stockholdings.

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

### Compact IR camera with industrial accessories



**Instrotech** – local representative of Optris, global leader in infrared camera technologies – is offering in addition to the Compact Line, the Xi 80 and Xi 400, now with industrial accessories for use in rough conditions. The system has a modular design and as a result, the water-cooled housing, the air purge unit and the shutter can be used both individually and combined.

#### Shutter mechanism protects the high-quality IR camera optics

This stainless-steel shutter is generally used to protect the optics from contamination and foreign objects. This is particularly important when the infrared camera measures upwards and the measurement objects are above it, such as in the glass industry. With a response time of just 100 ms, the IR camera is optimally protected from falling broken glass. Furthermore, the shutter can be used in intermittent processes so that the optics are exposed to environmental conditions only during the measurement process.

#### Temperature measurement in rough conditions

A stainless-steel, water-cooled housing and an air purge collar made of anodized aluminum are available so that the compact infrared camera can be used in rough conditions in the industry. Cooling allows for use in hot environments up to 250°C. The air purge unit protects against air particles and prevents condensation on the optics. It can be screwed on in 4 positions, allowing the air flow to be customized for the application. Integrated into the air purge unit is a silicone window that can be replaced without complex assembly steps if it suffers mechanical damage.

**Enquiries:** [sales@instrotech.co.za](mailto:sales@instrotech.co.za). For product information, visit [bit.ly/3iev5PC](http://bit.ly/3iev5PC)



## Testing of high voltage cable installations

High voltage insulated ac cable systems making use of legacy Fluid Filled and modern Solid Dielectric extruded XLPE designs have been utilised in South Africa for HV distribution systems of voltage rating from 25,4 /44 kV up to 76/132 kV. Limited Paper Insulated Lead Extruded PILE mass impregnated non draining cable designs have also been utilised in systems above 19/33 kV rating. The highest insulated cable system rating installed in this country is 400 kV ac and no high voltage dc cables have as yet been installed locally.

There is no argument that the higher the voltage rating, the more important the requirement for a reliable insulated cable system. This is illustrated by the fact that there is a drastic increase in the cost of high voltage systems when compared to medium voltage (MV) installations. This increase in cost relates not only to the higher manufacturing cost of the cables and the special accessories which are used, but also to the cost of the system design, installation and jointing practice, specialised skills required and the nature of commissioning testing after installation.

High voltage cables are designed with higher electrical stresses when compared with MV cables, which, can be up to 8 kV/mm at the conductor screen and 4 kV/mm at the insulation screen as compared to a typical operating stress of 2 kV/mm and 1 kV/mm respectively in MV cables. Higher stressed insulation systems translates to more sophisticated materials with higher breakdown strength and lower levels of contamination, therefore the need for more stringent quality control from the insulation system manufacturer as well as the cable manufacturer.

Accessories need to be designed to operate at increased stresses at the insulation interface when compared with MV accessories, calling for specialised materials, design and manufacturing processes and the need to test each insulation system of a pre-moulded joint and termination prior to shipment.

Cable manufacturers generally conduct system type tests in order to approve cable types together with a range of fitted accessories for the largest cable cross section conductor and highest rated voltage in the range of manufacture, which is not normally a requirement for MV cables.

### ON SITE TESTING

#### Tests conducted prior to energising the system

There are in essence two main categories of testing, namely Commissioning tests and Maintenance tests. Commissioning tests are conducted on newly installed cable systems or systems which have undergone repair work and involve overvoltage testing as opposed to a no load soak test, which in the past represented the only practical method to test HV cable systems prior to placing a feeder under load. These tests are done in order to confirm that the system performs as per the specification or set requirement and also to set a baseline against which the results of future tests may be measured. Newly installed systems usually represent the source of the majority of problems post installation as the intersection points are also the weakest points of a cable system. In the event that problems are detected under overvoltage test conditions, using Partial Discharge as a diagnostic tool, these issues may be addressed prior to placing the system in service and under load.

Maintenance testing is carried out on existing installations at the user's discretion in order to assess potential deterioration or problem areas such as the onset of partial discharge, in comparison to commissioning test results. Maintenance testing is currently carried out rather as the exception than the rule.

Modern mobile ac resonant test systems allow for overvoltage testing at what is regarded as near system frequency (20 to 300 Hz), thereby closely matching the electrical stresses which cable systems would be subjected to at 50 Hz. Such test systems from reputable manufacturers such as HiVolt and Phenix are used extensively around the world for testing capacitive loads, particularly power cables. Popular models are available for example in the 260 kV/83 A size range, capable of testing up to 400 kV cable systems and allowing for series connection of separate test units for increase test voltage or parallel connection for increased power, generally for longer cable routes or a less common arrangement being a combination of series and parallel connections.

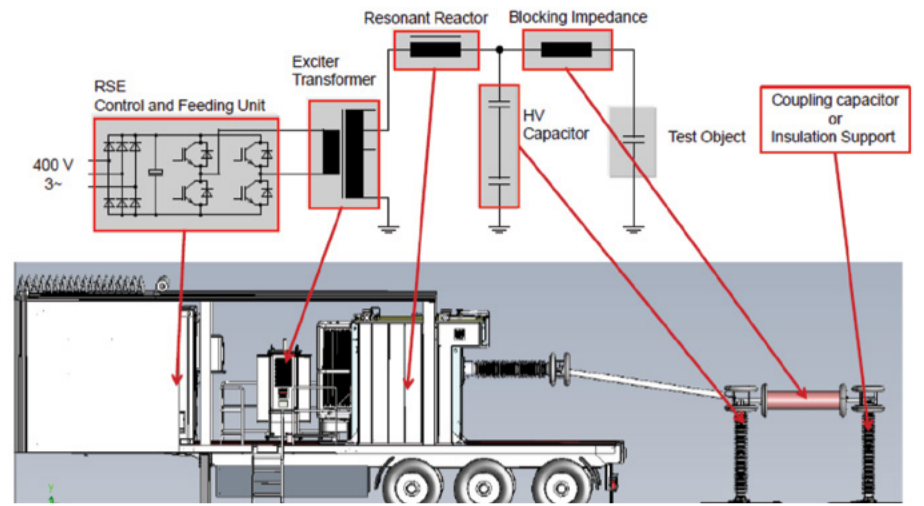


Table of Test Voltages to SANS 60840

Rated Voltage U	Highest voltage for equipment U <sub>m</sub>	Voltage U <sub>0</sub> for determination of test voltages	Tan δ measurement U <sub>0</sub>	Voltage test after installation (Power frequency)
kV	kV	kV	kV	kV
45 to 47	52	65	65	52
60 to 69	72,5	36	36	72
110 to 115	123	64	64	128
132 to 138	145	76	76	132
150 to 161	170	87	87	150

For extra high voltages SANS 62067 applies and the table below indicates the relevant test voltages

Rated Voltage U	Highest voltage for equipment U <sub>m</sub>	Voltage U <sub>0</sub> for determination of test voltages	Tan δ measurement U <sub>0</sub>	Voltage test after installation (Power frequency)
kV	kV	kV	kV	kV
220 to 230	245	127	127	180
275 to 287	300	160	160	210
330 to 345	362	190	190	250
380 to 400	420	220	220	250
500	550	290	290	320

Read the full article here: <https://www.crown.co.za/sparks-electrical-news/contractors-corner/23277-testing-of-high-voltage-cable-installations>




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## Looking back at the year 2022 in lighting

As I reflected on the year 2022 and my column Shedding Light in **Sparks Electrical News**, I realised that I have provided you, the readers, with a serialised lighting course and some important information about the shortcomings of our South African National Standards affecting lighting in South Africa. I shared the benefits of applying international lighting standards when doing all lighting designs.

This year, I plan to continue to provide you with useful content that you can use in your lighting practise, whether you are professional engineers, architects or lighting

practitioners employed in the lighting environment.

At this time in my life's journey, I believe it is essential to share the knowledge and experience that I have accumulated over 53 years in the lighting profession.

The South African lighting community is isolated from knowing about some of the world's foremost lighting professionals. I have been privileged and indeed, extremely fortunate, to be a member of two of the world's foremost lighting institutions viz The Institution of Lighting Professionals (The ILP) in the UK and the International

Association of Lighting Designers (IALD) based in Chicago USA with chapters (branches) throughout the Western world but unfortunately not in South Africa. It is through these excellent institutions that I have made numerous connections and, in many cases, established excellent relationships.

Despite my age, I continue to learn valuable lessons from them, in fact, I continue to study. I always strive to improve my knowledge in all matters lighting and to improve my skill in the application of the fast-developing new technologies within the lighting and lighting control environment. I also continuously do research to find the most appropriate and best ways to produce lighting designs that are the best for the wellbeing of the occupants of spaces both in the interior and exterior environments.

I am deeply conscious of the impact of over-illumination in indoor applications and even more aware of the dramatic effect of excessive outdoor lighting. Lighting that is too bright, is damaging to the environment in general, but particularly to the fauna and flora. My research into the adverse effects of most outdoor lighting continues. I hope to complete it early in 2023 and write a research paper on my findings. Much has been done in the UK, Europe and the USA. In fact, I have participated in some of the research and experimental work that has been done and continues in Denmark. Since the first demonstration of the first incandescent light to the Royal Institute in Great Britain in 1806 by Humphry Davy, and the subsequent invention of the useful commercial electric light bulb by both Thomas Edison and Joseph Swan in 1879, the next 143 years, the development of lighting technology and controls has taken monumental and breath-taking strides. I am sure that it will continue unabated into the future. Who knows what the next development in lighting technology will be? There are already the beginnings of white laser light, and what will be next?

I look forward to continuing writing these columns and wish you all the best for 2023.

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

## Outdoor entertainment lighting

### Don't neglect the entrance of your home

Fixtures positioned at your gate, alongside your driveway, flanking pathways and at the front door show guests where to drive, park and walk when they arrive at your home. By creating an inviting entrance to your property, you set the tone for the evening.

### Illuminate key points

Your patio or braai area shouldn't be flooded with bright light, but it is important that these areas are sufficiently illuminated so that guests can use them comfortably and safely. Key points to install fixtures include any entrances leading inside the home, any areas with steps or a change in ground level, around the pool, and near the braai.

### Avoid a harsh glare

As mentioned above, lighting that is too bright is not necessary or pleasant. Opt for fixtures that provide a soft glow as opposed to a harsh beam. This level of lighting allows people to see where they are going, what they are eating and where they can place the objects they're using. It also casts guests in a flattering subtle light and creates a relaxing ambience that encourages people to unwind.

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Radiant Lighting offers an extensive product range to meet your architectural and building requirements, no matter how big or small. Whether it's ambient, task or accent lighting that your project requires, our lighting specialists can offer you professional and technical advice ranging from specifying and on-site supervisory to after sales services, all backed up by warranty.



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## LED lighting solution for winery

**BEKA Schröder** is proud to have supplied the LED lighting solution for Alvi's Drift new wine cellar. Alvi's Drift is located in Scherpenheuvel, about 20km south of Worcester in the Western Cape province, South Africa.

The Alvi's Drift award-winning wine cellar, where modern and traditional production techniques are applied, was established in 1928. BEKA Schröder has supplied the comprehensive, South-African designed and manufactured LED lighting solution for Alvi's Drift's new wine cellar. The luminaires have been chosen for their versatility, high performance and energy efficiency.

### Inside the building

The ECOBAY and BEKARONDO have been installed inside the building. The ECOBAY is a lowbay and highbay lighting range with a high return on investment. The ECOBAY offers substantial energy savings, high performance and is able to operate at high ambient temperatures. Available with a selection of lumen packages and various light distributions, the ECOBAY is perfectly suited for multiple indoor lighting applications.

The BEKARONDO is a circular aluminium reflector LED downlight that drives performance and efficiency. The classic look that never ages allows various indoor applications to come alive and provides significant flexibility in the design and installation. The BEKARONDO is the ideal solution to enhance any building and to provide lighting for standard and higher mounting heights, depending on your needs. High-quality materials are used to ensure a best-in-class specification and peace-of-mind after installation. This, together with the long lifetime of the LEDs and an easy installation procedure, makes the BEKARONDO the downlighter of choice.

### Outside the building

The beautiful architecture of the exterior of the building is being accented with the LED-DUO uplighter. The LEDDUO combines energy efficiency with a sleek and sturdy design. Designed for exterior and interior lighting, the LEDDUO range offers two models – one square and one round – for a flawless integration into the architecture. It is characterised by a refined design, a robust construction and an efficient LED engine. Suitable for architectural and ambient lighting, the LEDDUO provides versatile solution.



At the entrance to the building, the QVAL provides general area lighting. The QVAL is a decorative, high-performance and reliable LED bulkhead which outperforms all conventional wall mounted bulkhead luminaires by providing a bright and long-lasting light. The design ensures a discreet integration without compromising on performance. The QVAL delivers a strong white light with a high colour rendering index to ensure perfect visibility and comfort at all times. The luminaire emits a pleasant light due to the highly efficient white reflector. The indirect reflector design has been specifically developed to not

only provide glare-free lighting, but also a high-performing light distribution. Thanks to the QVAL's high optical performance and strong mechanical design, it can achieve substantial energy and maintenance cost savings.

BEKA Schröder is proud to be associated with DM Consulting Engineers Cape, in collaboration with Malherbe Rust Architects and consultC Engineering, in providing an energy-efficient LED lighting solution for this beautiful project.

Enquiries: [ct@beka-schreder.co.za](mailto:ct@beka-schreder.co.za)

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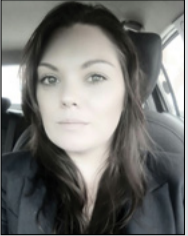
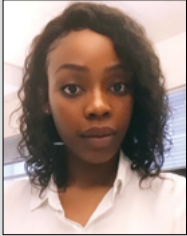





## ECOBAY

### LED lowbay and highbay

The ECOBAY is the ideal luminaire for lighting industrial facilities at optimized light levels. It offers **substantial energy savings**, high performance and is able to operate at high ambient temperatures. Available with a selection of lumen packages and various light distributions, the ECOBAY is perfectly suited for multiple indoor lighting applications. Thanks to its **reliable performance, low dust accumulation and no need for relamping and regular maintenance**, the ECOBAY is the luminaire of choice.

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<p><b>ARB Electrical Wholesalers</b></p>  <p><b>Tanya Koster</b> Over Head Line Tender Specialist</p>	<p><b>ABB</b></p>  <p><b>Samantha Zitha</b> Global Product Analyst</p>	<p><b>ElectroMechanica</b></p>  <p><b>Nadarajan Paul</b> Key Account Manager</p>	<p><b>Citilec</b></p>  <p><b>Gulam Rahman</b> Sales Specialist</p>	<p><b>Donovan Stevens</b> Divisional CEO of MV Switchgear</p>	<p><b>Leonard de Villiers</b> General Manager of Signalling</p>	<p><b>Actom</b></p>  <p><b>Leon Bushney</b> Tendering Manager of Power Systems</p>	 <p><b>Irene Munarini</b> Spares Manager of LH Marthinusen</p>	 <p><b>Avinash Ghansoon</b> Production Manager</p>
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- DBs, switches, sockets and protection
- Energy efficiency
- Lighting

**MARCH 2023 FEATURES**

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

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