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ECA national executive committee for 2015



The ECA(SA)'s national executive committee for 2015 is:
 Back: Giel Labuschagne (Highveld region delegate); Jimmy van Rooyen (KwaZulu-Natal region delegate); Clifly Davis (Free State region delegate); Pieter du Toit (regional director Free State); Stephen Khola (national director labour relations and human resources); Tembe Mwemba (national finance manager); Shantonette Pillay (regional director, KwaZulu-Natal); Pierre Foot (regional director Western Cape); Cecil Lancaster (regional director Bosveld region); Edwin Joshua (South/East Cape region) Front: Lucas Bowles (regional director South/ East Cape); Johnny Cunruff (first vice-president); Michael Straton (president); Mark Mfikoe (national director); and Thursdon Duncan (second vice-president).

Crack down on 'pirates' continues

THE crack team employed to rid the industry of pirate contractors is notching up success after success – many of these due to information from legitimate contractors.

"We are well on our way to cleaning up and taking back our industry, thanks largely to this team," says Mark Mfikoe, national operations director of the Electrical Contractors' Association of South Africa. The team from the National Bargaining Council for the Electrical Industry began operating in Gauteng last October and, says Mfikoe, has "delivered on expectations".

"Since October 2014, the team has registered 51 pirate contractors employing 325 workers – in Gauteng alone! Another 50 pirate contractors with 374 employees on their books have been identified and we are in the process of getting them to register with the NBCEISA," adds Mfikoe.

"This success is due to the publicity that this team has received, particularly in *Sparks Electrical News*, and the many legitimate tip-offs that the team has investigated. The team has given the informants feedback and we believe that it is important that stakeholders are kept up to date on the progress made by the team."

"Informants have led us to pirate contractors – who are employing unregistered workers – as far as Welkom, Lady-smith, Harrismith and Bethlehem. It has been a rewarding ride and the expansion plan is well under way," says Mfikoe.

He explains that the advantages of registering with the NBCEI is that a part of the requirements include registering with the Department of Labour as a contractor, employing registered licenced electricians, and registering employees with the Unemployment Insurance Fund (UIF) and the Workman's Compensation Commission.

"The real story behind this is a humanitarian one," says Mfikoe. "The workforce employed by these pirates has moved from a position where they had zero benefits to where they now have funeral and disability cover, sick benefit cover and retirement benefits. This means that the people who are responsible for the actual work being done are now adequately protected and their families will be financially secure should any peril occur."

Mfikoe says the NBCEISA team's promise to clean up the

industry will continue and expand to other provinces – and a national crackdown is on the cards.

Anyone with any information about pirate contractors should call Elaine at the NBCEISA on (011) 339 2312.

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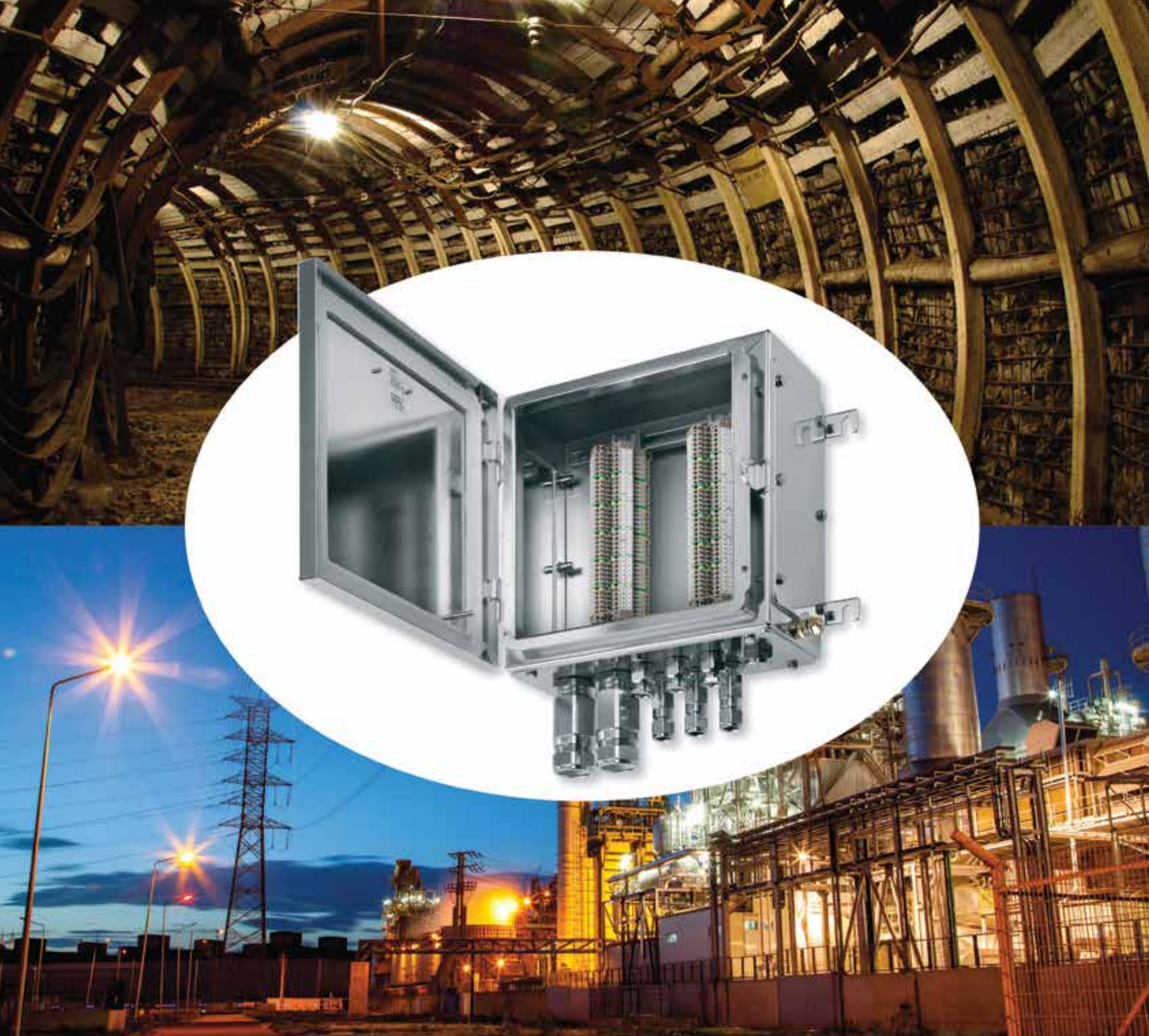
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Personality of the Month

A move from conventional power supply to 'sexy' lighting products



Tobias Badelt.

TOBIAS Badelt arrived in Johannesburg in October to take up the CEO's reins at OSRAM at a significant time in the lighting industry as LED lighting technology advances at an unprecedented rate.

With nearly two decades of experience in the low and medium voltage industry – the last three years in Nairobi, Kenya – his calm yet authoritative leadership style coupled with innate German precision are qualities that will aid him as he sets out to accomplish his objectives at OSRAM.

These include supporting South Africa's drive to reduce energy consumption by providing the right illumination products, systems and solutions; and leading the OSRAM staff into a sustainable future.

Sparks: Where were you educated?

TB: I studied at the Technical University of Aachen in Germany where I obtained an Electrical Engineering Diploma.

Sparks: How long have you been involved in the electrical industry?

TB: Over the past 18 years, I have worked in various positions that involved many different facets of this industry: from power supply and drives to

service and repair – and logistics to illumination.

Sparks: When and where did you start your career?

TB: My career kicked off with Siemens 18 years ago with the commissioning of a static VAR (volt ampere reactive) compensator in Stellenbosch, which was an Eskom project.

Sparks: What are the greatest changes you have seen over the years?

TB: One thing that is certain is that technology never stops developing and improving. I have seen great changes in industrial automation and, insofar as lighting is concerned, the technological advances in LED lighting have been impressive.

Sparks: What major projects have you worked on and what is your greatest accomplishment?

TB: It was extremely rewarding to be involved in driving growth in the industry during the seven years I worked in China, which has a very exciting business environment.

Sparks: Have you won any awards?

TB: For me, the most important 'award' has been that I am content with my family – my wife and two children.

Sparks: Who has been your inspiration or have you had a mentor who has influenced your career?

TB: Of course, there have been a few 'bosses' in my career whom I have trusted and honoured more than others, but I haven't had a specific mentor. I try to be as rational as possible – and the experience of working all over the world has helped a lot in shaping my career.

I believe that you always have to find a compromise between your and the company's expectations while respecting all the borderlines and rules.

Sparks: What, to your mind, is one of the biggest challenges facing the industry at this time?

TB: The speed of industrial development is compelling people to change their mind sets and to keep pace with change – and the challenge is to keep one step ahead of the pack.

Sparks: What do you enjoy most about your job?

TB: After working in conventional power supply for many years, I now am really enjoying work-

ing with 'sexy' lighting products – and to me, light is emotional.

Sparks: How do you motivate your staff?

TB: I believe that, to motivate your staff, you need to be an example to them and be able to do whatever it is that you expect from them.

Secondly, I expect them to respect the differ-

ence between working time and free time; and thirdly, motivation includes praise for work well done and constructive criticism for work that is not so good – both are important.

Sparks: If you could 'do it all again', would you change anything? If so, what would that be?

TB: I wouldn't change anything.

Sparks: Would you advise a person leaving school to enter the electrical industry? And why?

TB: If that person is interested in the electrical industry and has the capability and the vision to succeed, I would definitely recommend that they should enter this exciting arena. Why? It never gets boring; every day is challenging and, especially after a project has been completed, you can see the results – and you can be proud of your achievement.

Sparks: What is your advice to electrical contractors and/or electrical engineers?

TB: My advice is to go for quality – it always pays off in the end.

Sparks: What is your favourite quote?

TB: "Do yourself what you expect from others" would be my personal quote. If you ask me for a quote from a famous person, it would be: "It is the time you have wasted for your rose that makes your rose so

important." Antoine de Saint-Exupéry, *The Little Prince*!

Sparks: Name three things on your 'bucket list' (things you want to do before you 'kick the bucket').

TB: There is nothing special on my bucket list. I enjoy every minute of whatever I do every day and there is nothing that comes to mind that I have to do before I kick the bucket!

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Old motors get new lease on life



Jarred van den Bergh, an apprentice at Marthinusen & Coutts, laying out the insulation tapes for the winders in order to complete final taping on the field frame leads.

MARTHINUSEN & Coutts, a division of Actom, was awarded the contract to refurbish three winder motors at the Cullinan Diamond Mine. The contract was awarded by instrumentation and control specialist ABB, in consultation with Petra Diamonds. ABB is in the process of upgrading the mine's winders to a thyristor drive control system. "We were requested to inspect the condition of the motors, one of them being 57 years old, and provide a report on any repairs or upgrades required to accommodate the new drives," explains Craig Megannon, general manager, Marthinusen & Coutts Cleveland. "We initially thought that we would have to rewind both the armatures and the field frames, but on inspection in our works and after carrying out extensive electrical testing we reported that the field frames were in good condition," Megannon says, adding that the customer saved a lot of money by not having to rewind the field frame coils, and only having the armatures rewound.

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Working knowledge by Terry McKenzie-Hoy



Some practical advice for rookies

THIS month's column is aimed at anyone who is starting out on a career in electrical engineering: a recently employed apprentice, graduate, technician... any of these. More than advice, this is rather counsel: a word in your ear about what you may find and what you may be asked to do in your new environment.

In your first week, you can expect the following:

(a) You will be bored. Even if there is an induction programme, when you get to the coal face or the workshop, expect to be bored. This is be-

cause you know nothing and can do very little and very few of your fellow workers want to take on the strain of having to teach you. Thus you will be given some mundane task, patted on the head and asked to disappear and do it. Do what you can but, importantly, don't finish the task in ten minutes and then trot back for more instructions. Do what you can and finish it; then tell whoever gave you the job what you have done (preferably) the following morning.

(b) You will have a feeling of being lost. This is

normal, especially in factories and consulting firms. Do ask if you don't know but don't become intrusive. Do not talk too much during tea breaks and lunch breaks. Remember that the words 'silent' and 'listen' contain the same letters.

(c) You will be given confusing instructions. Deal with this by writing them down as you are given them. This will ensure that the person giving the instructions will attempt to be more accurate when doing so. Once you

have written them down, read back what you have been asked to do. Do not use any form of shorthand when writing down the instructions. If asked, for example, to go to the rigger's shop and ask for a coffin winch, write: 'Riggers shop, ask for a coffin winch for ...'. Don't write: 'Riggers/winch'. Also, add the date to each of these instructions. (Did I mention that you should have a note book and pen to write things down?)

(d) You can expect to be somewhat confused by all the new names, places, people and positions. This is normal. What I do is to privately make a note of each person I meet and associate them with a characteristic and a number. Yes, a number. Thus, for example, Mr Boundermug, the foreman rigger, will be 'boundermug, grey hair, gold ring rigger 11'.

My system is that a person's number shows their position. The boss of all is '1'; the head of a department or workshop is '11' or '12' or '13'; and a deputy is '21' or '22' and so on. You can create any system you like that will work for you.

(e) You can expect that, once somebody sees you can half-do the work, you will be given all those horrible projects that nobody wants to do – and you may get to a point that you are overloaded. All I can say is ... do your best.

Ten tips on what to do and not to do:

- (1) It may sound irrelevant but, at the coffee station, it is very likely that the tea cups and coffee mugs all have an owner. Do not assume that any cup or mug is yours to use. Ask first or bring your own mug.
 - (2) In smaller firms, it is wise to go to the accounts department and introduce yourself. If they have heard of you, then there is no problem. If they haven't, by making them aware of your presence, you'll have made sure that you will receive a salary payment.
 - (3) Do not be late for work or leave early. Yes, there are delays due to traffic and accidents. And there are occasional doctors' appointments. But keep it cool. Allow for delays in getting to work. Nothing chips management off more than staff arriving late and leaving early.
 - (4) Advice for artisans: Never borrow tools from anyone.
 - (5) Never open or put your hand in another person's tool box, ever.
 - (6) Never sit on another person's tool box.
 - (7) If you steal a tool from someone else, you will be beaten up.
- Finally, that old saw:
- (8) Do work safely: gloves, hard hat, safety boots, and glasses.
 - (9) Do not work on unearthed electrical equipment.
 - (10) Work hard and, if you can, have fun.

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- Exposing sub-standard products and services
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For more information contact: Pierre Nothard
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*For the most up to date list of members please go to www.safehousesa.co.za

New industrial connection system available in SA

ACDC Dynamics, sole distributor of the Italian-designed Gewiss product ranges in southern Africa, confirms that the new IEC309 High Performance connection system is available locally.

"Gewiss's new IEC 309 High Performance range is a high-end range of industrial connections that delivers outstanding performance, functionality and technical features," says ACDC's brand manager, Charlton Opperman. "The range includes a comprehensive assortment of products, which allows for a system to be created and to make installations simpler."

The new range expands Gewiss's 16 A and 32 A mobile plugs and mobile and flush-mounting socket outlets with IP44 and IP66, IP67, IP68 and IP69 protection in the quick and screw-in wiring versions.

"The range can be wired and assembled quickly as it has been restyled as a single, modern, functional line," he explains.

"The new High Performance range includes 63 A and 125 A plugs and socket-outs with polarity, voltage and nominal frequencies suitable for all systems up to 500 V, and with IP44 protection and IP 67 watertight versions, multi-pliers and adapters, low voltage versions, as well as 90°, straight flush-mounting and 10° surface-mounting versions," says Opperman.

The main features of the IEC 309 High Performance range are:

Safe-lock closure: The ¼ turn screw guarantees practical, simple use with quick assembly and safe closing due to the readily identifiable reference system. In addition, the same screwdriver used for conventional wiring can be used. Manufactured from reinforced technopolymer, the Safe-Lock system ensures maximum resistance to abrasion, which ensures a long lifespan and eliminates the problem of the metal closing system becoming corroded, even in aggressive environments.

Practical and ergonomic: All mobile socket-outlet covers are designed with a special shape for ease of safe opening – even with one hand.

New functional coupling system: The units feature a nibbed screw – a product requirement for secure socket-outlet covers. The innovative shape of the new products enables them to be coupled to fencing and scaffolding when being used in trailing systems.

Raised earth terminal: The new IEC309 High Protection range has a raised earth terminal and if a connection cable is accidentally pulled out, the earth cable will be the last to be released, preventing the user from sustaining an electric shock and avoiding electrical discharge on devices.

New cable clamping system: The new external cable clamp on all versions secures the cable and maintains the IP rating. It can easily be closed by hand, without the use of tools while the anti-loosening device prevents the accidental unscrewing or loosening of screws – even when subjected to considerable vibration or

mechanical stress. The cable gland accommodates a range of cables above regulatory requirements, both at the bottom and top.

Nickel-plated pins and contacts: All products in the IEC309 High Performance range feature nickel-plated pins and contacts for more efficient contact on elements with a higher degree of oxidation. The nickel-plating guarantees maximum product life and allows for use in environments with critical climatic conditions (marine environments) or aggressive substances.

Single pack: Each item in the IEC 309 HP range is individually blister-packed, ensuring that the product remains clean while in storage.

Halogen-free: All products are manufactured using halogen-free technopolymer and conform to EN50267-2-2.

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GEWISS has updated its connection systems with a unique design, introducing the new range of industrial plugs and sockets IEC 309 HP- HIGH PERFORMANCE offering. These products are the fore runner in the market in terms of performance, practicality and technical characteristics. They are available with screw or fast spring wiring - the most advanced technology available today, in these ranges. The core features of this industrial plug and socket offering have been revamped, providing an innovative solution for both the 16A and 32A connectors, straight or flush mounting, providing an IP compliant rating of up to IP68/IP69. Truly unique technology.

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The ECA(SA) strategic conference: the importance of planning

IN January, the construction industry emerged from the builders' shutdown to face the challenges of 2015. Sometimes luck is on your side and things succeed but the problem with luck is that you can never depend on it to give you the edge in any competition. And, because there is no recipe to create luck it isn't advisable to rely on 'fate' to clear a path through the challenges. The key is to plan well.

I recently attended a graduation ceremony at the University of South Africa where Professor Wiechers told a story that I will share with Sparks' readers.

There were two fellows chopping wood, each

using an axe. There was a generous prize for the guy with the largest load of wood at the end of the day. One competitor chopped non-stop, only taking a break to stack the wood and take leaves out of the way. By lunchtime, he realised that his competitor was ahead of him so he cut short his lunch break and kept on chopping. He noticed that his competitor took regular 20 minute breaks and, when he didn't hear the sound of his competitor's axe chopping, he believed he was ahead. However, at the end of the day, his pile of wood was a lot smaller than that of his competitor.

Unimpressed, he asked his competitor to explain and he was surprised at the simplicity of his reply.

His competitor said that he made sure he took regular breaks as this offered two things: it gave him an opportunity to rest and, most importantly, he had time to sharpen his axe!

It was all part of a plan.

The lesson to learn from this story is captured in the counsel of John S. Hindis who advises us on the keys to success: (1) Research your idea; (2) Plan for success; (3) Expect success; and (4) Just plain do it! Hindis expresses amazement at how many

people never get to the last step. He instructs that we should "practise being a 'doer' and success will follow every step of the way". Doing is, however, not enough without planning – we need planning and action.

In the wood chopping tale, the competitor who was just a 'doer' failed because of a lack of planning. The competitor who won did so because he was a doer with a plan.

At the start of 2015 I realised that this is the first time in 17 years that I am not involved in the management of an electrical contracting concern.

During those 17 years, I began each year with a plan for the coming year: Make the best of secured work by focusing on margin improvement and customer satisfaction – which inevitably leads to customer retention and workload development.

Strategic planning

During the last week of February, the ECA(SA)'s strategic planning conference will address a number of issues; and membership retention and development on the back of a strong service delivery culture remains important. We aim to emerge from the strategic conference with a clear vision: how to perform over the next five years as an organisation whose members employ about 75% of employees in the formal electrical contracting industry in South Africa.

We will determine our strategy as the most organised association in the low voltage electrical industry in southern Africa. As a facilitator of business opportunities for our members, we will also determine a strategy on expansion into the African continent.

With the theme 'consolidate, develop and grow beyond borders', the conference will be ground-breaking and the ECA(SA) must come out of it as an instrument for change, a facilitator of wealth creation for its members and a champion of national and continental good.

To achieve this task, luck would be a bonus but planning is essential; and this cycle must start with a great deal of determination from the ECA(SA)'s national executive committee (NEC) and the executive team. I am sure the executive management and the elected leadership of the association are aware that the pace of the pack is determined by the speed of the leadership. This requires hard work prior to the conference and an even bigger effort post conference. "A free lunch is only found in mouse traps," advises John Capuzzi. We embrace this advice.

Members are urged to send their ideas to the ECA(SA)'s national office – particularly about the expansion of membership service and the challenges that members believe are hampering their development and expansion into the continent.

We need a plan that will stand the test of time.

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THE ABB-produced range of AF contactors are distributed in South Africa by channel partner, Elquip Solutions. Managing director, Mike Cronin, says, the products are proving to be popular because they are "relevant, serving specific industry criteria".

"These key requirements include managing application requirements, coordinated systems, and safe and easy handling, as well as products that are able to handle voltage disturbances and are supported by comprehensive technical documentation," says Cronin.

"The products are used by original equipment manufacturers (OEMs), where they are utilised in the manufacture of compressors, cranes, drives, elevators and pumps. The products are also popular in the pulp and paper industry as well as steel, water and mining industries."

A particular application – used worldwide and locally – is the renewable energy industry, in which the contactors are used in wind turbines. AF Contactors can be used in the variable speed drives of wind turbines to control their main circuitry.

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Portable appliance testers with great features



FLUKE, represented locally by the Comtest Group, has launched its new 6200-2 and 6500-2 PAT (portable appliance testers), which replace, with immediate effect, the 6200 and 6500 models. Fluke PAT testers verify the electrical safety and operation of portable appliances in accordance with relevant guidelines and regulations. With powerful auto test capabilities and simplified controls, they increase the number of tests that can be performed daily, without compromising the results.

There is a choice of automatic or manual PAT testers and both models perform all tests required for Class I and Class II appliances. For manual testing and low volume applications, the cost-effective Fluke 6200-2 PAT model is indicated and, for testing large

numbers of appliances, the more powerful Fluke-6500-2 is suggested.

Both models offer 'one-touch', pre-set and user-definable test routines from a single button to speed up test procedures and can save valuable on site time.

The QWERTY keyboard (or optional Fluke barcode scanner) and fast data transfer via USB flash drive, enable rapid data entry/transfer. Fluke's starter model 6200-2 portable appliance tester features a dedicated key for each test for 'one-touch' testing; pre-set pass/fail levels to save time; and a large backlit display for easy reading.

Fluke's professional model 6500-2 portable appliance tester features:

- Integral QWERTY keyboard for rapid data entry.
- Additional USB memory drive for back-up data storage and transfer to PC.
- Pre-set, auto-test sequences for user convenience.
- Colour dot matrix display provides better visibility and viewing angle.
- 250 V insulation test.
- Optional 110 V test capability for testing appliances at building sites.
- RCD Test capability for protected appliances.

Enquiries: +27 11 608 8520

New improved website

CBI-electric: low voltage, suppliers of electrical protection and factory automation solutions for global applications has launched its newly revamped website www.cbi-lowvoltage.co.za, which offers improved navigation and functionality.

The website offers updated product and technical information and the latest industry news and events. A comprehensive list of authenticated distributors across South Africa and the African continent

is listed on the website and includes full contact details of all the distributors of CBI-electric: low voltage's products.

In addition, the website is fully interactive with CBI-electric's social media presence that can be accessed on Facebook and LinkedIn.

Users can now access all CBI-electric's online platforms via desktop, laptop, tablet or smartphone.

Johannesburg-based, CBI-electric: low voltage (previously known as Circuit Breaker

Industries or CBI) manufacturers and supplies quality low voltage electrical distribution, protection and control equipment to multiple industry sectors including: residential, commercial, industrial and mining applications, as well as utilities.

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Cable knives designed for safety



Knipex has a range of VDE 1 000 V rated cable knives, manufactured in Germany. The knives' handles are ergonomically designed for easy handling and come with a comfortable slip guard. A thumb recess and finger hook at the end of the handle ensures a good transmission of force when the blade is pulled. The blades are manufactured from special tool steel, which is oil hardened. There are five models in the range: straight blade; straight blade rear blade plastic-coated; fixed hook blade; sickle-shaped blade; and fixed hook blade with guide shoe.

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| <p>PROTURN 3K Handy All-Rounder</p> <ul style="list-style-type: none"> • Multi-component handles allowing for maximum torque transfer • Hanging hole in handle • Blades made of high quality CVM steel & chrome-plated • Precision black tip <p>R299.00 excl VAT</p> | <p>PROTURN 3K VDE PREMIUM Insulated VDE Screwdriver</p> <ul style="list-style-type: none"> • Comfortable multicomponent handle with practical hanging hole • Handle made of high impact resistant polypropylene • Blades made of high quality CVM steel through hardened black oxide finish • Each tool tested to 10 000V • Suitable for use on live lines (1000 VAC / 1500 DC) <p>R277.00 excl VAT</p> |
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HellermannTyton
Legrand South Africa
NewElec
O-line
Phoenix Contact
Power Panels and Electrical
Power Process Systems
Radiant Group
Riken
SRE Developments
Sabelco Electrical Industries
Schneider Electric
Waco Industries

Distributors

ACDC Dynamics
ACTOM Electrical Products
Allbro Industries
Alstom Protection and Control
Anglo Allied Engineering
ARB Electrical Wholesalers
Cabstrut
Crabtree Electrical Accessories
Eaton Electric
Electromechanica
Elen Electrical Enclosures
Grafo Wiremarkers Africa
HellermannTyton
Magnet Electrical Suppliers
Major Tech
MCE Global Suppliers
PMCG
R&C Instrumentation
Riken SA
SRE Developments
Stone Stamcor
Voltex
Waco Industries

Distribution boards

ACDC Dynamics
 Wide range of DBs in various materials; economy plastic to steel; pre-wired and open boxes; surface and flush mount boxes available in most ranges; watertight enclosures
ACTOM Electrical Products
 Full range of DBs
Allbro Industries
 Full range of DBs
Alstom Protection and Control
 Power distribution and motor control panels from 3 000 A to 50 kA, power distribution and trunking, control desks, marshalling and distribution kiosks
ARB Electrical Wholesalers
 Full range of DBs
CBI-electric : low voltage
 Steel and plastic cover DBs
Crabtree Electrical Accessories
 Flush mount DBs
Eaton Electric
 Full range of DBs
Electromechanica
 Hager, Scame
Elen Electrical Enclosures
 Range of enclosures by Schneider Electric Universal Enclosures (SAREL)
Legrand SA
 Full range of flush- and surface-mount, waterproof, DIN rail boards
Magnet Electrical Suppliers
 Schneider DBs
Major Tech
 Flush mount econo boards; surface mount IP65 boards; surface mount Econo boards
MCE Global Suppliers
 Onesto DBs surface mount and flush-mounting two-way to 52-way; Onesto ready boards; swimming pool DB; caravan DB; Schenker adjustable flush-mounting DB
PMCG
 Full range of DBs
Power Panels and Electrical
 Full range of DBs: Prisma; Panelmaster; Gersan
Power Process Systems
 Full range of DBs
Riken
 Flush mount – plastic and metal
Sabelco Electrical Industries
 Sabelco-Cubic Type tested assemblies; complying to IEC 61439; SANS1973-1; SANS 1973-3; SANS/IEC60439, manufactured in mild-steel, 3CR12, 304 & 316 stainless, IP rating up to IP65. Form factor up to 4B
Schneider Electric
 4-Series flush and surface DBs, power range
SRE Developments
 Distributor of DBs
Voltex
 Full range of DBs
Waco Industries
 Full range of DBs

Contact

ABB
 Dudley Bath
ACDC Dynamics
 Sara Ross
ACTOM Electrical Products
 Russell Ramsden
Allbro Industries
 John Allan
Alstom Protection and Control
 Paul Lepora
Anglo Allied Engineering
 Sales
ARB Electrical Wholesalers
 Arvinash Ramdas
CBI-electric : low voltage
 Aletta Olivier
Cabstrut
 Juanita Kanagan
Clearline Protection Systems
 Jan Heinen Jr
Crabtree Electrical Accessories
 Sales
Eaton Electric
 Sales
Electromechanica
 Sales
Elen Electrical Enclosures
 Andy Kapral
Grafo Wiremarkers Africa
 Cliff Theunissen
HellermannTyton
 Sales
Legrand SA
 Luk Ivens
Magnet Electrical Suppliers
 Kevin Govender
Major Tech
 Werner Grobbelaar
MCE Global Suppliers
 Sales
NewElec
 Luc Dutrieux
O-line
 Sales
Phoenix Contact
 Sales
PMCG
 Hannes Schwartz/Colin Laubscher
Power Panels and Electrical
 Andy van der Merwe
Power Process Systems
 Joyce Toth
R&C Instrumentation
 Steve Edwards
Radiant Group
 Ashveer Lalla
Riken SA
 Hartley Greger
Sabelco Electrical Industries
 Ludi Erasmus
Schneider Electric
 Nico van der Merwe
SRE Developments
 Cheryl Hird
Stone Stamcor
 Theo Momphe
Voltex
 Hugh Ward
Waco Industries
 Jaco Coetzee

Labeling

ARB Electrical Wholesalers
 Full range of labeling products
Electromechanica
 Klemsan
Grafo Wiremarkers Africa
 Full range of labels, some with a 10-year durability outdoors with a temperature range of -40° C to 82° C as well as other solutions all supported by a Brady BMP21+ printer with two year guarantee
HellermannTyton
 HG, HO, PU markers, after-termination (W) markers, Dymo printers
Legrand SA
 Cable markers CAB3 and Memocab
Magnet Electrical Suppliers
 Brady labelling products
MCE Global Suppliers
 DB label book (self-adhesive)
Phoenix Contact
 Full range of labeling products
PMCG
 Full range of labeling products
Power Process Systems
 Full range of labeling products
Stone Stamcor
 Brady identification systems
Voltex
 Full range of labeling products

Other

Elen Electrical Enclosures
 Enclosures and cabinets, compression cable glands, panel ventilation fans and cooling units, vortex tube panel coolers, thermoelectric panel coolers, resistance heaters

Circuit breakers / earth leakage breakers

ABB
 Full range of circuit breakers, earth leakage breakers
ACDC Dynamics
 Full range of switchgear from 13 mm MCBs to MCCBs and ACBs; MCCBs rated from 20 A to 1 600 A; complementary isolator and earth leakage ranges also available
ACTOM Electrical Products
 Full range of circuit breakers/earth leakage breakers
Alstom Protection and Control
 Air circuit breakers to 600 A, fixed and withdrawable
ARB Electrical Wholesalers
 Full range of circuit breakers/earth leakage breakers
CBI-electric : low voltage
 Full range of low voltage circuit breakers and earth leakage units – MCBs, MCCBs, ACBs, CBE
Crabtree Electrical Accessories
 Complete range of 6kA domestic miniature circuit breakers
Eaton Electric
 Full range of circuit breakers/earth leakage breakers
Electromechanica
 Hager circuit and earth leakage breakers; Lovato, Fanox earth leakages
Legrand SA
 Complete range of circuit breakers up to 6 300 A
Magnet Electrical Suppliers
 Schneider and Eaton circuit breaks and earth leakage breakers
Major Tech
 Vetri 3 kA MCB series one-pole to four-pole; Vetri 6 kA MCB series one-pole to four-pole; Vetri earth leakage series two-pole and four-pole; Vetri isolator series one-pole to four-pole
MCE Global Suppliers
 Onesto circuit breakers and earth leakages; new Schenker mini 13 mm circuit breakers; Schenker circuit breakers and earth leakages
PMCG
 Full range of circuit breakers and earth leakage breakers
Power Panels and Electrical
 Full range of circuit breakers and earth leakage breakers: ABB; Schneider; Siemens; Legrand; Chint
Power Process Systems
 Full range of circuit breakers/earth leakage breakers
Riken SA
 3 kA, 6 kA DIN miniature circuit breakers: 1 A up to 100 A, moulded case circuit breakers, isolators –32 A up to 1 250 A, earth leakage units DIN mount 25 A to 63 A
Schneider Electric
 4-series miniature circuit breakers, 4 series earth leakage circuit breakers with and without overload protection, 4 series power range DIN rail
SRE Developments
 Distributor of circuit breakers and earth leakage breakers
Voltex
 Full range of circuit breakers, earth leakage breakers
Waco Industries
 Full range of circuit breakers, earth leakage breakers

Contactors

ABB
 Full range of contactors
ACDC Dynamics
 Wide variety of contactors
ACTOM Electrical Products
 Full range of contactors
Alstom Protection and Control
 Taian Product – all applications
ARB Electrical Wholesalers
 Full range of contactors
CBI-electric : low voltage
 Full range of contactors, overload relays and motor starters
Eaton Electric
 Full range of contactors
Electromechanica
 Lovato, Hager
Legrand SA
 Contactors up to 310 A
Magnet Electrical Suppliers
 Schneider and Eaton contactors
MCE Global Suppliers
 MCE ac magnetic contactors three- and four-pole
Phoenix Contact
 Full range of contactors
PMCG
 Full range of contactors
Power Panels and Electrical
 Full range of contactors: Schneider; ABB
Power Process Systems
 Full range of contactors
Riken
 Riken contactors – 12 A up to 400 A, CE contactors – 9 A up to 630 A
SRE Developments
 Distributor of contactors
Voltex
 Full range of contactors
Waco Industries
 Full range of contactors

Protection

ABB
 Full range of protection devices
ACDC Dynamics
 Full range of motor protection circuit breakers (MPCBs) from 32 A to 110 A frame high break capacity; all accessories and auxiliary contacts available including the Gewiss IEC309 HP range of connectors
ACTOM Electrical Products
 Full range of protection devices
Alstom Protection and Control
 LV and HV protection relays, well known GEC brands, new MiCOM range
ARB Electrical Wholesalers
 Full range of protection devices
CBI-electric : low voltage
 Full range of quality low voltage electrical distribution, protection and control equipment
Clearline Protection Systems
 Lighting and surge protection
Eaton Electric
 Full range of protection devices
Electromechanica
 Finder, Lovato, Hager, Socomec, Scame, Electro and Fanox
HellermannTyton
 Full range of protection devices
Legrand SA
 Complete range of protection devices
Magnet Electrical Suppliers
 Schneider and Eaton protection devices
MCE Global Suppliers
 Onesto surge arrestors, Schenker surge arrestors
NewElec
 LV 3-phase motor protection products for fans, pumps, compressors, crushers and conveyor motors
O-line
 Full range of protection devices
Phoenix Contact
 Full range of protection devices
PMCG
 Full range of protection devices
Power Process Systems
 Full range of protection devices
Riken
 Overload protection – thermal (Riken, CE), overload protection electronic
SRE Developments
 Distributor of protection devices

Fuses

ACDC Dynamics
 BS and DIN type fuses for fused isolators
ACTOM Electrical Products
 Full range of fuses
Alstom Protection and Control
 LV and HV DIN and BS fuse links
ARB Electrical Wholesalers
 Full range of fuses
Eaton Electric
 Full range of fuses
Electromechanica
 Full range of fuses
Legrand SA
 HRC, domestic and industrial fuses
Magnet Electrical Suppliers
 Full range of fuses
MCE Global Suppliers
 MCE ceramic fuses and fuse holders; MCE glass fuses and fuse holders; Onesto fuses and fuse holders
Phoenix Contact
 Full range of fuses
PMCG
 Full range of fuses
Power Process Systems
 Full range of fuses
Radiant Group
 Range of fuses
Riken
 10 x 38 mm cylindrical fuses, 2 A to 16 A (CE) in line fuses – 4 A glass (CE)
SRE Developments
 Distributor of fuses

Hazardous areas

ACDC Dynamics
 Full range of products for hazardous areas
Anglo Allied Engineering
 Square D limit switches
ARB Electrical Wholesalers
 Full range of products for hazardous areas
Eaton Electric
 Full range of products for hazardous areas
Elen Electrical Enclosures
 Assembled, tested and certified to Eex'e (increased safety), Eex'l (intrinsic safety)
Magnet Electrical Suppliers
 ATX products for hazardous areas
Major Tech
 Approved instruments for use in hazardous areas
Power Process Systems
 Full range of products for hazardous areas
R&C Instrumentation
 Infrared thermometers
Voltex
 Full range of products for hazardous areas

Timers

ABB
Full range of timers

ACDC Dynamics
Wide variety of timers including the Rhomberg range of timers

ACTOM Electrical Products
Full range of timers

Allbro Industries
Full range of timers

Anglo Allied Engineering
Schleicher and Wieland timers, relays and safety switches

ARB Electrical Wholesalers
Full range of timers

CBI-electric : low voltage
Standard electronic time switches and energy control units

Eaton Electric
Full range of timers

Electromechanica
Lovato, Hager, Electro

HellermannTyton
Range of plug-in mechanical and digital timers and DIN rail mounted timers

Legrand SA
Complete range of analogue and digital timers

Magnet Electrical Suppliers
Schneider and Eaton timers

Major Tech
Various timers: 24-hour programmable timer; weekly programmable timer; 18 on/off digital programmable timers; 12-hour on/off digital programmable timer; 24-hour analogue industrial timers; 8 on/off digital industrial programmable timer

MCE Global Suppliers
MCE digital and analogue timers, geyser timers

PMCG
Full range of timers

Power Process Systems
Full range of timers

Radiant Group
06SW2 range of lighting and geyser timers

Riken
Electronic timers (Riken), time switches – electromechanical and digital (CE)

Schneider Electric
4-Series programmable digital and analogue timers, DIN rail timers

SRE Developments
Manufacturer of timers

Stone-Stamcor
SAIA-Burgess timers

Voltex
Full range of timers

Waco Industries
Full range of timers

Distribution board enclosures

ABB
Full range of DB enclosures

ACDC Dynamics
Wide range of DB enclosures in all colours, materials and sizes

ACTOM Electrical Products
Full range of DB enclosures

Allbro Industries
Full range of DB enclosures

ARB Electrical Wholesalers
Full range of DB enclosures

Cabstrut
Full range of DB enclosures

CBI-electric : low voltage
12-way and 20-way distribution board enclosures

Eaton Electric
Full range of DB enclosures

Electromechanica
Hager, Electro

Elen Electrical Enclosures
Range of enclosures by Schneider Electric Universal Enclosures (SAREL)

Legrand SA
Full range of flush and surface mount, waterproof, DIN rail boards

Magnet Electrical Suppliers
Rittal and Allbro DB enclosures

Major Tech
Ready board with 50 A overload protection; ready board with 50 A overload protection and light; populated 12-way DB; populated weatherproof swimming pool DB

MCE Global Suppliers
Onesto distribution boards surface-mount and flush-mounting two-way to 52-way

PMCG
Full range of DB enclosures

Power Panels and Electrical
Full range of DB enclosures: Prisma; EAE; Gersan

Power Process Systems
Full range of DB enclosures

R&C Instrumentation
Infrared windows to allow safe IR inspection

Riken
DB enclosures designed and manufactured to all specifications

SRE Developments
Distributor of DB enclosures

Sabelco Electrical Industries
Sabelco-Sabsteel enclosures up to IP65, manufactured in mild steel, 3CR12, 304 & 316 stainless

Voltex
Full range of DB enclosures

Waco Industries
Full range of DB enclosures

Switches/isolators

ABB
Full range of switches and isolators

ACDC Dynamics
Wide variety of switches and isolators

ACTOM Electrical Products
Full range of switches/isolators

Allbro Industries
Full range of switches/isolators

Alstom Protection and Control
Isolators in ACB format to 6 000 A

Anglo Allied Engineering
Bernstein switches, Square D switches; limit switches and pressure switches

ARB Electrical Wholesalers
Full range of switches/isolators

CBI-electric : low voltage
Full range of low voltage switch disconnectors

Crabtree Electrical Accessories
Complete range of switches/isolators

Eaton Electric
Full range of switches/isolators

Electromechanica
Lovato, Socomec

Legrand SA
Domestic and industrial switches and isolators

Magnet Electrical Suppliers
Full range of Schneider and Eaton switches and isolators

Major Tech
Veti complete switches range modular and mono block; Veti complete isolator range

MCE Global Suppliers
MCE isolators; Onesto Oracle range of switches, sockets and isolators

PMCG
Full range of switches and isolators

Phoenix Contact
Full range of switches/isolators

Power Process Systems
Full range of switches/isolators

Riken
Rotary switches – 10 A to 400 A, bypass switches up to 1 250 A, change over switches load break isolators

Schneider Electric
Full range of switches/isolators

SRE Developments
Distributor of switches and isolators

Voltex
Full range of switches and isolators

Waco Industries
Full range of switches and isolators

Meters

ABB
Full range of meters

ACDC Dynamics
Digital panel meters and digital process meters

Alstom Protection and Control
Power and tariff metering product

ARB Electrical Wholesalers
Full range of meters

CBI-electric : low voltage
Class I electricity rain mount meters – single- and three-phase alternatives in DIN and mini rail

Eaton Electric
Full range of meters

Electromechanica
Lovato, Hager, Electro

HellermannTyton
Full range of test instruments and accessories

Legrand SA
Lexic DIN rail mount

Magnet Electrical Suppliers
Schneider and Power Star meters

MCE Global Suppliers
Onesto energy meters – digital and counter type

PMCG
Full range of meters

Power Process Systems
Full range of meters

Riken
Ammeters, voltmeters, running hour meters, frequency meters

Voltex
Full range of meters

Waco Industries
Full range of meters

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ACTOM
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ALLBRO
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Crabtree
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ABB
+27 10 202 5000

MCE ELECTRIC
+27 11 683 0641

voltex
your electrical connection
+27 11 879 2000

Stone-Stamcor
Bringing Power to your Product
+27 11 452 1415

Surge protection devices

ABB
Full range of surge protection devices

ACDC Dynamics
Wide variety of surge protection devices

ACTOM Electrical Products
Full range of surge protection devices

ARB Electrical Wholesalers
Full range of surge protection devices

CBI-electric : low voltage
Clip-in dual mounted surge protection devices

Clearline Protection Systems
Full range of Clearline and Dehn LV and MV surge protection devices

Eaton Electric
Full range of surge protection devices

Electromechanica
Cirprotec, Hager

HellermannTyton
Lightning and over-voltage protection

Legrand SA
Full range of surge protectors

Magnet Electrical Suppliers
Schneider and Phoenix Contact surge protection devices

Major Tech
MTD6 appliance surge protector

MCE Global Suppliers
Onesto surge arresters; Schenker surge arresters

O-line
Full range of surge protection devices

Phoenix Contact
Full range of surge protection devices

PMCG
Full range of surge protection devices

Power Panels and Electrical
Full range of surge protection devices: Surgetek; NTE

Power Process Systems
Full range of surge protection devices

Riken
8kA on lighting arresters

Schneider Electric
Full range of surge protection devices

SRE Developments
Distributor of surge protection devices

Voltex
Full range of surge protection devices

Waco Industries
Full range of surge protection devices



Disclaimer: Information will be published as supplied. Only manufacturers who meet the deadline are included in the guide. The onus is on manufacturers to ensure that the editor is notified of any changes to existing listings.



Happy Holidays



Allbro

One drinks cooler/
container

- Inge Olivier, Klerksdorp

Carin Hannay (Sparks) and Elani van Zyl (Allbro).



Comtest

Two Fluke 107 digital multimeters
from the FlukeLite range

- Tinus Nell, Vereeniging
- John Herdman, North Riding

Jenny Warwick (managing member, Crown Publications) and Peter Verwer (Comtest).



Jenny Warwick (managing member, Crown Publications);
Sebastian Johannes and Precious Mtimkulu (Bosch).

Bosch

One cordless drill driver GSR 10.8 Li plus
one 2.0 Ah battery

- Peter Opie, Roosevelt Park



Carin Hannay (Sparks) and Anthony Lloyd (Eurolux).

Eurolux

One solar powered camping lantern with
cell phone charger kit, USB socket and three
lighting modes

- Marius van Vuuren, Steytlerville



Ian Jandrell keeps a close watch as Kirsten Larkan does the draw for
Zest WEG.

Zest WEG Group

One Mastercraft 80-piece metric toolkit

- Henry Campbell, Vryheid



Karen Grant (publisher, Crown Publications) and Waco's Jaco Coetzee.

WACO

One solar light

- Corrie Goosen, Honeydew



Jenny Warwick (managing member, Crown Publications);
Jessica Hitchcock and Bernice Struthers (Voltex).

Voltex

One decorative ceiling fan with light plus one LED
lamp

- Helen Sitati, Houghton

Promotion winners

THE Sparks Happy Holidays draw took place at the Royal Kensington and Johannesburg Golf club on 14 January when the sponsors of the prizes gathered for the occasion.

A representative from each company took a turn at drawing the winning entries out of the bonsela box.

Congratulations to the 32 lucky Sparks readers and thanks to everyone who entered.



Theo Momple (Stone Stamcor); Radha Naidoo (Sparks); and Mark Talbot (Stone Stamcor).

Stone Stamcor

Three 3D-2 crimping tools

- Renato Colussi, Parow
- Hennie Kies, Swellendam
- Marcelle Trollip, Plettenberg Bay

One KH120 crimping tool

Deon Boshoff, Richards Bay

One HX120B crimping tool

- Piet van der Merwe, Niekerkshoop



Erika van Zyl (Sparks) and Garry Lumpe (Knipex/WIHA)

Garry Lumpe

One WIHA five-piece tool set

- Johan Viljoen, Bredell

One KNIPEX toolbag with a six-in-one multi-plier and an IREGA 150 mm VDE shifter

- Kevin Welch, Jacobs



Chad Andrews (Crabtree), Nadine Combrinck (Crabtree) and Karen Grant (publisher, Crown Publications).

Crabtree

10 multiplug extension cords

- Neville Busse, Pinegowrie
- Brendan Wilbraham, Knysna
- Ray Garnett, Aston Manor
- Cole Johnston, Westgate
- Eddie Appel, Queenswood
- Arrie van Staden, Rothdene
- Gary Upfold, Nkwalini
- Renier du Preez, Port Elizabeth
- J P Kloppers, Brits
- Sushila Inderjith, Chatsworth



Carin Hannay (Sparks) and Ian Downard (Three-D Agencies).

Three-D Agencies

Three UT60G Modern digital multimeters

- Louis Aronowitz, Sandringham
- Steven Johnston, Vereeniging
- Ray van Heerden, New Germany



Charmaine Venter (HellermannTyton); Charne Joubert (HellermannTyton); and Colin Mazibuko (Sparks).

HellermannTyton

Three ELECMINI 14-piece toolkits (including LED headlight with adjustable settings)

- Fred Wittstock, Assagay
- Zisiwe Mnothoza, Century City
- Johan Boerman, Rustenburg



Ian Jandrell (Crown Publications); Stacey Conradie and Jan Anderson (MCE Electrical).

MCE Electric

One 20 W portable and rechargeable LED work light from the O-lite LED lighting range

- Gavin Kilassy, Carletonville



Mark Palmer, Western Cape Electrical Inspection Authority (WCAEIA)

The consumer's earth terminal – an enigma?

It is becoming increasingly apparent that, with the onward march of development and the associated attempts to reduce costs, the consumer's earth terminal is fast becoming an enigma.

The provisions of SANS 10142-1 have since inception had specific requirements for both the installation of this terminal as well the connection of certain earthing conductors.

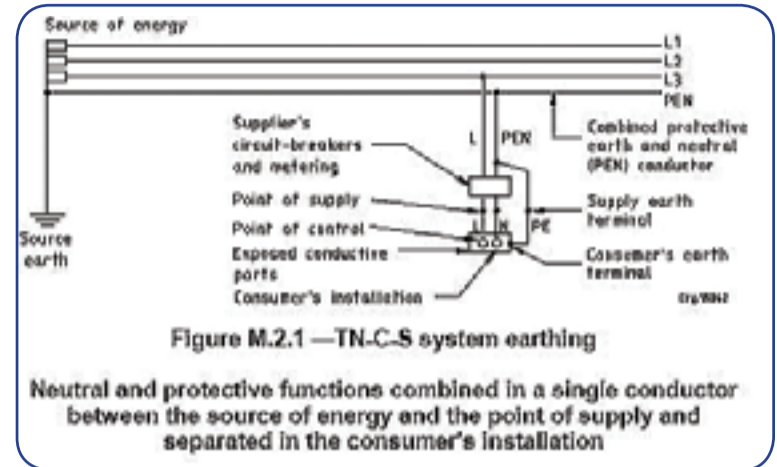
This column examines this issue in more detail.

SANS 10142-1 Clause 6.11

6.11.1 Each installation shall have a consumer's earth terminal (see 3.18) at or near the point where the supply cables to the installation enter the building or structure. All conductive parts that are to be earthed (see 6.12.3) shall be connected to a main earthing terminal (see 3.29.4), which shall be connected to the consumer's earth terminal. The consumer's earth terminal shall be earthed by connecting it to the supply earth terminal

(see 3.78) or the protective conductor (see 3.15.8) and, if installed, the earth electrode. The effectiveness of the supplier's protective conductor shall be determined in accordance with 8.7.5.

This is quite a lot to digest but it becomes easier to put into perspective when referring to the various electricity supply systems and, for purpose of this column, I will use the more commonly used TN-C-S system. The system earthing diagram clearly



indicates the position of the consumer's earth terminal, which is connected directly to the supply earth terminal. Reference should also be made to definition 3.18 for further explanation:

3.18 Consumer's earth terminal

... terminal that is effectively and permanently earthed and to which the earth continuity conductor of an installation is permanently connected ...

This consumer's earth terminal should not be confused with the main earth terminal, which would be installed in the consumer's installation and is more specifically referred to in Clause 6.11.2 and definition 3.29.4 with clarification of parts to be connected to the main earthing terminal. In terms of the requirements of Clause 6.11.1, the main earthing terminal must be connected to the consumer's earth terminal.

The importance of distinguishing between these earth terminals cannot be over emphasised as there are numerous references of parts to be connected to the consumer's earth terminal and not the main earth terminal.

The consumer's earth terminal is referenced in the following clauses:

Definition 3.15.4

Earth continuity conductor

... earthing conductor: conductor, including any clamp or terminal, that connects the consumer's earth terminal to the exposed conductive parts of an installation for the purpose of earthing such parts and carrying fault currents ...

Definition 3.15.8

... protective conductor PE conductor provided for purposes of safety (protection against electric shock) and that also connects the supply earth to the consumer's earth terminal ...

SANS 10142-1 Clause 6.11.5

A readily accessible earthing terminal shall be provided for the bonding of other services such as a telephone, an audio or a video system, and the like, to a building. Such an earthing terminal shall be bonded to the consumer's earth terminal by a conductor of at least 6 mm² copper or equivalent, and shall be identified by the earth symbol. (In many cases this terminal is being bonded to the main earthing terminal in the consumers installation).

SANS 10142-1 Clause 7.15.2

7.15.2 Earthing

Earthing and bonding of power supply circuits for telecommunication systems shall comply with the following requirements:

c) The main earthing terminal shall be bonded to the consumer's earth terminal (see also 6.11).

Various references are also made to this terminal where alternative supplies are installed as well as Annexure L where surge protection devices (SPDs) are installed.

Of particular importance when dealing with the consumer earth terminal are the testing requirements detailed in SANS 10142-1 Clause 8:

8.7.2 Continuity of bonding

Test the continuity of the bonding between the consumer's earth terminal and all exposed conductive parts using a supply that has a no-load dc or ac voltage of 4 V to 24 V, and a current of at least 0,2 A. In each case, the resistance shall not exceed 0,2 Ω.

8.7.3 Resistance of earth continuity conductor

Use a resistance meter to measure the resistance of the earth continuity conductors between the consumer's earth terminal and the earthing terminals of all points of consumption and switches. The values shall not exceed those given in Table 8.1.

Many may think that earthing is earthing and inevitably, leakage will find its path to the ground. In conclusion, I must reiterate my frequent references to the legal implications: compliance to the letter of the law is what is called for when things go wrong and a technical explanation sometimes falls on deaf ears. The standard, with its legal implications, asks electrical practitioners to ensure the standardisation of electrical installations.

I cannot see what the problem with this might be!



South Africa

Johannesburg
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email: ap@actom.co.za

Blombosfontein
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email: ap@actom.co.za

Wolfsburg
25, 10th Street, Vredenburg, 9470
PO Box 315, Vredenburg, 9480
Tel (052) 104 1911, Fax (052) 104 2100
email: ap@actom.co.za

Cape Town
12 Heerbaan Avenue, Epping Industria Bldg 1, 7400
PO Box 278, Epping, Cape, 7170
Tel (021) 522 2800, Fax (021) 522 2010
email: ap@actom.co.za

Port Elizabeth
290 Kangeron Road, Silverhill, Port Elizabeth, 6001
PO Box 2642, Silverhill, Port Elizabeth, 6008
Tel (041) 611 5811, Fax (041) 611 5810
email: ap@actom.co.za

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PO Box 5000, Pietermaritzburg, 3210
Tel (033) 293 0020, Fax (033) 293 1400
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Stellenbosch
Street No 1194/1, Tafelberg Road, Stellenbosch, 710
PO Box 705, Stellenbosch, 7100
Tel (027) 210 2238, Fax (027) 210 2210
email: ap@actom.co.za

Paarl
1047 T, 12 Spierkop Street, Wittevoel, Paarl, 7100
PO Box 1000, Waterfall Mall, 7100
Tel (023) 548 8812/13/14
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email: ap@actom.co.za

East London
1047 T, 12 Spierkop Street, Wittevoel, Paarl, 7100
PO Box 19104, Tsimbani, 5214
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Middelburg
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PO Box 315, Vredenburg, 9480
Tel (052) 104 1911, Fax (052) 104 2100
email: ap@actom.co.za

Africa

Nairobi
Unit 5, No 4 Gold Street, Properties, Nairobi
PO Box 20204, Kinross Estate, Westlands, Nairobi, 00100
Tel (011) 812 1100, Fax (011) 812 1100
email: ap@actom.co.za

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PO Box 241, Harare
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Composite insulators for instrument transformers developed

ACTOM High Voltage Equipment has developed a composite insulator for its 132 kV instrument transformers, following its successful introduction of an ACTOM-branded composite post insulator for its 132 kV disconnectors in early-2014.

The division's move to develop composite insulators was prompted mainly by the need to provide insulators with improved pollution performance, which silicon insulators provide.

The latest ACTOM-branded offerings are for the division's 132 kV current and voltage transformers. As with the porcelain-core insulators for its 132 kV disconnectors introduced earlier in 2014, these glass-core composite insulators are designed and manufactured according to global best practice.

Terry Lawrenson, ACTOM High Voltage Equipment's Divisional CEO, says the ACTOM-branded insulators have been developed in response to customer demand. "We are progressively

developing our own designs of insulators for our equipment with the goal of offering our markets the options they prefer when it comes to insulators, eventually supplying all the various types of high voltage equipment we manufacture fitted with ACTOM-branded silicon-coated composite insulators specifically designed to suit each type," he explains.

"In addition to the silicon insulators for protection against pollution, the new product has the advantage that it is less subject to damage than the conventional product," Lawrenson adds.

The division is on track to also introduce silicon-coated composite insulators for its 11 kV, 22 kV and 33 kV instrument transformers.

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Nick de Beer (right), ACTOM High Voltage Equipment's product manager, instrument transformers, discusses with Jan Venter (supervisor, insulators), one of the new 132 kV current transformers equipped with composite insulators and a new design secondary terminal block. An old CT unit with porcelain insulators is seen on the left behind Venter, and on the right an old 132 kV voltage insulator with the new version beside it.



Motor protection relay with proven track record



NEWELEC'S MA motor protection and control relay has a proven track record and is fitted with advanced features to immediately automate an older plant. The relay is issued with free front-end software allowing access to password protected settings and comes with comprehensive protection elements for the motor. This includes automatic non-negotiable back-tripping configuration into the back-up circuit breaker via a shunt when an earth or short-circuit fault is detected. This safeguards the contactor and possible loss or damage of an MCC cubicle when exposed to a high-energy fault condition.

Although short on starter logic configuration, the relay has four output contacts, as well as five digital inputs that can accommodate voltages in the range 24 to 220 V ac or dc. This opens the possibility to automate an older plant utilising existing switchgear and control circuits by manipulating the existing control circuit wiring. The relay accommodates up to three PTC sensor circuits for real time over-temperature tripping of either bearing ends or motor windings. The integrated current transformers and earth leakage detection cores are housed in the rear of the relay.

In keeping with NewElec's policy of being user-friendly, the control panel features fault indication LEDs while the relay also stores the last four faults with time and date stamping. A communications tray supporting Profibus, Modbus or Canbus protocols can be added to round off a solution that is neither expensive nor short on protection and control features. The MA relay remains a popular relay with many of NewElec's customers across a broad spectrum of industries.

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New surge protection device series for IT systems launched



THE surge arresters of the DEHN-connect SD2 series are designed as space-saving terminal blocks with a width of 6 mm. These terminal blocks, with integrated surge protection, have a modular disconnection function that allows for interruptions to the signal circuit for maintenance work.

An integrated module ejector disconnects the signal circuit from terminal equipment. The disconnection module does not have

to be removed, but remains in a parked position in the module slot.

This two-pole surge arrester for signal interfaces of data and information technology systems, boasts a maximum impulse current carrying capability of up to 20 kA (8/20µs), as well as a fast and safe conductor connection thanks to the spring-loaded connection system.

Different types of arresters are available and protect two single

lines sharing a common reference potential (DCO SD2 ME) or an unearthed pair (DCO SD MD). The ATEX and IECEx approved arrester DCO SD2 MD EX 24 can be used for intrinsically safe measuring circuits and bus systems. The arresters are ideally suited for use in industrial environments at information technology signal automation, measuring and control interfaces, as well as bus systems.

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Established in 1978 Allbro is a South African company with more than 320 employees. Allbro supplies key components that are used in almost every locally made transformer. With the acquisition of ABB York in 2011 Allbro also became a leading supplier of non-metallic enclosures to the industrial and residential contracting trade. Brands like York, Okari, Enlec, Utilec are well known in the South African market and are all solely manufactured by Allbro in South Africa. Local manufacture to international standards means that products are suited to the local environment, are of the highest quality and are readily available.

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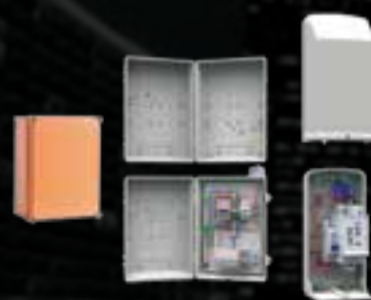


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Professional laser enables safe transfer of measurement data



THE new Bosch GLM 100 C Professional data transfer laser finder simplifies and speeds up the workflow process by enabling the direct transfer of measurements straight to a digital device.

Thanks to its integrated Bluetooth and a micro USB port, all measurements captured with the Bosch GLM 100 C Professional can be sent in real-time to another compatible digital device, such as a smartphone or tablet.

Bosch Power Tools SA senior brand manager Juergen Lauer says, "All measurements that have been stored on the device can be exported to a Windows PC, via Bluetooth or the micro USB port, in table format and can then be processed on the computer. The measurements include the time and date for easy identification, and the data can be stored as a Microsoft Excel or Editor file, allowing for further processing."

Measurement functions of the GLM 100 C Professional include the calculation of length, surface and volume. Lauer notes that the tool also features a timer function that can be combined with other device functions. "The time function assists the user when movements between measurements are to be excluded from the measurements. Measurement takes place automatically after the set time period has passed. The time period can be set at between 1 and 60 seconds," he explains.

Other functions of the Bosch GLM 100 C Professional include distance and area measurements, as well as continuous measurement, incline measurement, and minimum and maximum measurements. The tool can also carry out addition and subtraction functions, along with indirect height and distance measurements, and double indirect height measurement. It also features an integrated 1,25 Ah Lithium-Ion battery, which can easily be charged via the micro USB adapter, and has an operational lifespan five times that of two standard AAA alkaline batteries.

The device memory can store up to 50 measurements as well as one constant value. The GLM 100 C Professional has a measuring distance of up to 100 m. It is small and compact, weighing only 0,14 kg, and is suitable for use in a variety of work environments.

Enquiries: +27 11 651 9600

LV circuit breakers improve cost margins

To cater to the needs of its comprehensive customer base in southern Africa, Schneider Electric offers three EasyPact product ranges within its EasyPact family of air and moulded-case circuit breakers (MCCB), switch disconnectors, and motor starters.

Engineered to minimise downtime, lower the total cost of ownership and maximise efficiency in numerous applications, the three ranges comprise EasyPact CVS, EasyPact MVS and EasyPact EZC.

"The EasyPact ranges offer an easy straightforward selection for a complete system whether you are a panelbuilder and need circuit breakers that have the flexibility to cover the majority of applications, or if you are a designer who needs to meet the requirements for reliability, safety, and cost," says Levy Moholola, low voltage product manager at Schneider Electric South Africa.

He says that the EasyPact CVS range of MCCBs is ideal for low-voltage applications from 100 to 630 A. "EasyPact CVS is specifically designed to serve the requirements of medium-sized commercial and industrial buildings. This range of circuit breakers, with its compact, modular design, is simple and safe to install, operate and maintain. It also offers a high level of performance and protection at the most competitive price. The adjustable thresholds and a service breaking capacity rated at 100% of the ultimate breaking capacity make it one of the most durable products in the market," explains Moholola.

EasyPact CVS complements Schneider Electric's EasyPact MVS range of low-voltage power circuit breakers and switch disconnectors, which cover applications from 800 to 4 000 A, and delivers a high current withstand rating (Icw) as well as a level of functionality unusual in its price range.

Both the EasyPact CVS and MVS ranges are copper and aluminium conductor compatible and offer convenient horizontal or vertical terminal orientation.

The third range in the southern African EasyPact family is the EZC range, an easy energy efficient choice for simplicity in MCCBs. Rated for 15 to 400 A, EasyPact EZC is ideal for feeders and sub-feeders in residential and commercial, as well as marine application and are 100% compliant with marine standards.

The EZC range offers multiple connection options: fixed front mounting, plug-in mounting, front connections, bare cables connected through cable lugs, screwed inside the breaker, and a unique "fish bone" connection, which saves a great deal of space.

"All circuit breaker ranges within the EasyPact family are designed to operate in close coordination with each other to localise the impact of a fault and maximise facility uptime," says Moholola.

These ranges are also manufactured from premium materials in ISO 9001 and ISO 14000 certified production plants, and are fully tested to meet all relevant local and international safety standards.

Enquiries: +27 11 254 6400

Executive directors appointed



Schneider Electric SA has announced the appointment of Canninah Mapena (right) and Bongani Twala (left) as executive directors to its board. Mapena also serves as the director of the energy division at Schneider Electric South Africa. Her focus is on the strategic planning and development of the company's energy business in southern Africa, customer relationship management, negotiations and deal closing within the utilities market, with particular attention on the mining, minerals and metals (MMM) and solar sectors, as well as the oil and gas market. Twala also serves as vice-president for the service business unit at Schneider Electric South Africa. He is tasked with providing leadership to the services business throughout southern Africa; this encompasses all services tasks, from commissioning solutions, through the installation of products to 'end of life' services, across all Schneider Electric business units that focus on the industry, utilities and buildings market sectors.

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Automatic timer and motion analyser

THE EGIL from Megger, is an automatic timer and motion analyser for medium and high voltage substation circuit breakers. It is intended for use on circuit breakers with one contact per phase. EGIL incorporates features commonly found on more complex test systems, but is designed to be smaller, simpler to use and less expensive than other similar test sets. Its price makes it attractive to smaller utilities and it is an ideal supplementary product for maintenance departments at larger power companies.

To aid ease and speed of use, the EGIL has a built-in sequencer that automatically runs the selected breaker operating sequence while making the appropriate measurements and

recording the results. In addition, menu-driven procedures invoke sensible default settings, thereby eliminating the need for time-consuming pre-setting. Megger's EGIL test set offers three timing channels for the circuit breaker main contacts. Main contacts and pre-insertion resistor contacts can be timed on the same channel, with the results recorded graphically and numerically on the integral printer. Results are also shown numerically on the instrument's large easy-to-read display. When EGIL test sets have the SDRM option installed, the SDRM201 module extends the facilities to allow accurate resistance measurements to be made on circuit breaker contacts and other low resistance devices.

When used with the test leads provided, the SDRM201 is capable of supplying an instantaneous current of 200 A dc, falling to 140 A after 1 s. Multiple tests can be run with only a short waiting time between them. Megger is represented locally by Surgetek.

All content courtesy of Megger

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Getting to grips with SANS 10142-1 by Hannes Baard

Who wants to be a kamikaze pilot?

OVER the past few issues, we've delved quite extensively into the workings and make-up of 'health and safety' in the workplace. The 'health and safety' that I'm referring to, of course, cover the legislative aspects of the subject as covered and penned in the Occupational Health and Safety Act (Act 85 1993).

We have looked at things such as the responsibilities of employers, the responsibilities of employees and the fact that certain of the responsibilities can be delegated. To this effect, we have had an in-depth look at what the Occupational Health and Safety Act (Act 85 1993) has to say about health and safety representatives and who can be appointed as a health and safety representative – and, ultimately, how these individuals come together as health and safety committees.

Therefore, to conclude the rather protracted topic on health and safety representatives and committees, we will look at the functions of the collective representatives as a committee or as committees.

Section 20 of the Occupational Health and Safety Act (Act 85 1993) states:

20. Functions of health and safety committees

(1) A health and safety committee

(a) May make recommendations to the employer or, where the recommendations fail to resolve the matter, to an inspector regarding any matter affecting the health or safety of persons at the workplace or any section thereof for which such committee has been established;

(b) Shall discuss any incident at the workplace or section thereof in which or in consequence of which any person was injured, became ill or died, and may in writing report on the incident to an inspector; and

(c) Shall perform such other functions as may be prescribed.

(2) A health and safety committee shall keep record of each recommendation made to an employer in terms of subsection (1)(a) and of any report made to an inspector in terms of subsection (1)(b).

(3) A health and safety committee or a member thereof shall not incur any civil liability by reason of the fact only that it or he failed to do anything which it or he may or is required to do in terms of this Act.

(4) An employer shall take the prescribed steps to ensure that a health and safety committee complies with the provisions of Section 19(4) and performs the duties assigned to it by subsections (1) and (2).

Key in subsection (1)(a) is the word 'recommendations'. This means that a safety representative, a committee or committees can propose, suggest or provide advice to improve health and safety matters in the workplace. What it does not say is that it can be one-sidedly implemented by the safety representative, committee or committees without consultation with management.

What it does say, too, is that if management does not seem to be interested in the issue that has been raised and it can be proven that it is, indeed, a serious situation, the safety representative, committee or committees can inform an inspector from the Department of Labour who will then take the matter further.

Section 20 further states that incidents at the workplace shall be discussed and reported in writing if someone has become ill or has died because of circumstances at the workplace. Section 20 concludes with an 'instruction' to the employer by using the word 'shall' to take steps, prescribed or otherwise to ensure the health and safety representative, a committee or committees actually performs their duties prescribed in Section 19 of the Act.

21. General prohibitions

(1) The Minister may by notice in the Gazette declare (a) That no employer shall require or permit any

employee belonging to a category of employees specified in the notice to perform work on or in any premises on or in which an activity specified in the notice is carried out which in the opinion of the Minister is an activity which threatens or is likely to threaten the health or safety of an employee belonging to that category of employees, or that no employer shall require or permit any such employee to perform any work on or in such premises otherwise than on the conditions specified in the notice;

(b) That no employer shall require or permit any employee to perform any work in connection with the carrying out of a process specified in the notice which in the opinion of the Minister is a process which threatens or is likely to threaten the health or safety of an employee, or that no employer shall require or permit an employee to perform any work in connection with the carrying out of such a process otherwise than on the conditions specified in the notice; and

(c) That no employer shall require or

permit any employee, otherwise than on the conditions specified in the notice, to perform any work on or in any premises where an article or substance specified in the notice is produced, processed, used, handled, stored or transported which in the opinion of the Minister is an article or substance which threatens or is likely to threaten the health or safety of an employee.

(2) (a) The Minister shall, before he publishes a notice under subsection (1), cause a draft of his proposed notice to be published in the Gazette and at the same time invite interested persons to submit to him in writing, within a specified period, comments and representations in connection with the proposed notice.

(b) The provisions of paragraph (a) shall not apply if the Minister, in pursuance of comments and representations received, decides to publish the notice referred to in subsection (1) in an amended form.

(3) A notice under subsection (1) may at any time be amended or withdrawn by like notice.

(4) A notice shall not be issued under

subsection (1) or (3) unless the Minister for National Health and Welfare and the Council have been consulted.

(5) A notice issued or deemed to have been issued under Section 13 of the Machinery and Occupational Safety Act, 1983 (Act 6 of 1983), and which was in force immediately prior to the commencement of this Act, shall be deemed to have been issued under this Section.

Eish! The above – Section of 21 of the Occupational Health and Safety Act (Act 85 1993) – is again a prime example of how legislators mince words. What it basically says is: Your employer or boss cannot make you do a life threatening job or a job that will affect your health and/or safety if the Minister of Labour does not think it's in your best interest and has issued a notice to this effect.

I wonder if the kamikaze pilots in World War II (and some modern day martyrs) had the blessing of a Minister of Labour? (Oh, sorry ... that blessing would have come from a Minister of Defence ...)

Stay alive till next time.

LV circuit breakers: a yardstick to service life

By Kevin Flack, product manager for MCBs and ACBs, CBI – electric: low voltage

WHEN determining whether an installed circuit breaker should be replaced or not, safety is the main priority. When fuses were phased out in the 1950s and the changeover to circuit breakers began, the new technology required a deviation from surface-mounted installations towards distribution panels. While there are many installations from this era that are still in daily service, when those properties change hands or repairs have to be carried out, electrical contractors have to issue a Certificate of Compliance that will ensure the continued safe use of the electrical systems in these homes, businesses, factories and mines.

Determination of the predictive life

The longevity of a circuit breaker cannot be decided only in terms of the years of use. The service life will require some diagnosis by experts but could be gauged in broad terms by typical manufacturing data that includes environmental factors; tripping and switching cycles; length of service; maintenance levels; as well as inspection and maintenance selection.

Correct selection of inspection and maintenance levels can ensure that trouble can be avoided and ensure the circuit breakers can be used for the longest possible time. It is a good idea to introduce periodic inspection approximately a month after commencement of use. Twice yearly inspect that there are no adverse environmental conditions such as steam, corrosion or rust. Every year check for dust and humidity and once every two to three years ensure that the environment is clean and dry. During these inspections examine whether there are any loose connections or damage to components as well as dust or moisture contamination. Look for signs of abnormal temperatures and melted cable insulation or plating; for any discolouring; and for tripping breakers. Ensure that all barriers are in place; and test the earth leakage (EL) operation via the test button or using an EL tester or mechanically trip the circuit breaker.

Inspection after tripping or fault

The cardinal rule is to establish why the circuit breaker tripped and remove the cause before simply switching on again. High-level short circuits will have a dramatic effect on the life of a circuit breaker so avoid unnecessary switching into known high level faults. Before switching on, check the possible reason for tripping, including faulty equipment etc., as well as the estimation of fault level and calculate the length back to the supply transformer.

A low intensity trip will show no signs of carbon soot and the equipment can be re-used after precautionary checks for signs of overheating or tripping. A medium intensity trip will show signs of carbon soot around the venting area only. In this case equipment can be reused only once insulation tests >5 MΩ and the equipment has been monitored for signs of overheating or tripping. For a high intensity trip there will be large amounts of carbon soot in the vent area including metallic residue or soot visually obvious around the handle and damage related to the fault. In this instance immediate replacement is required before reconnection.

Service life approximations

The service life of circuit breakers therefore depends on the sum total operational cycles and total tripping cycles on fault conditions and the intensity levels of those faults as well as the impact of the installed environment. This may be gauged by experienced experts who are able to safely open and test the units but this



process is neither practical, nor cost effective.

For circuit breakers and units that have been installed in excess of 25 years, a systematic replacement is called for. The units have served their intended purpose and non-trip or slow trip may cause additional costly damage. The potential risk of malfunction exceeds the planned replacement costs. The total life cycle has not been under consideration of a single person.

| Installed conditions, use and environment | Approximate service life |
|--|--------------------------|
| Indoor dry; dust free; clean air; air-conditioned; low risk of tripping; original installed no modifications; regular professional monitoring or maintenance; closed high rated IP panel boards. | 10-20 years |
| Indoor light dust; no corrosive gases; low risk of tripping; good service levels of maintenance; thorough inspection if trip out occurred. | 7-15 years |
| Dust requiring regular attention; industrial contamination; corrosive gases; moisture; steam; sewage treatment; iron; paper or similar processing and manufacturing plants. Panel boards require constant attention to clean; service and keep production process going. Spontaneous secondary flashovers have occurred in the past; Highly modified panel boards over five year period. | 3-7 years |
| Excess dust; grit; corrosive moisture conditions typical of mining; quarry; chemical plants. Typically workers are required to use additional PPE measures to be in the area or are limited in the area. Cable damage is constant in occurrence. | 1-3 years |

Summary

For continued safe use, circuit breakers of known long installed life, or where the installed conditions are considered arduous, or risk of failure could be considered as not acceptable, require expert evaluation with a view to replacing them. Service staff employees are ideal front line personnel to identify these sites and recommend corrective actions.

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Lighting retrofit without compromising the quality of light

MEADOW Feeds has embarked on a journey to remain a globally competitive animal feed company by implementing greener business practices that not only make financial business sense, but most importantly consider the environmental impact. The first step towards achieving this was to install smart metering and implementing an energy efficiency lighting retrofit project that delivered real value to the production facility whilst cutting energy costs.

Meadow Feeds contracted Energy Cybernetics to develop and implement an energy efficiency lighting project at their feed manufacturing facility in Randfontein. The project qualified for partial funding through the Eskom Standard Product Programme (SPP). In terms of the SPP, Eskom refunds a client part of the cost of an energy efficiency project, based on the energy (kWh) and demand savings that the project achieves. For this project, the Eskom rebate was just under 25% of the total project cost.

Although energy efficient lighting projects are considered as low hanging fruit, it is recognised as the quickest, most cost-effective and least intrusive energy saving intervention. With plants that operate 24/7, lighting retrofits cause minimum disruption to day-to-day operations. In addition, many proven energy efficient lighting technologies are now available, which guarantees quality and expected energy savings thereby reducing the risk of the project investment.

Eskom requires that savings need to be substantiated through the use of a spreadsheet, or tool, that calculates the project impact as well as the rebate that Eskom would pay to the client on successful project completion. This tool was developed by Eskom and has been used in many projects. The validity of the tool is not at issue, as Eskom is prepared to pay out substantial rebate amounts to customers based on the outputs from the spreadsheet.

However, since Meadow Feeds has had very little prior experience with either energy efficiency projects or with Eskom's SPP, the client required measurement of the project impact to support or validate the Eskom SPP tool, purely as an internal control for the project and to motivate further investments in energy efficient projects within the group.

Energy Cybernetics installed PowerWatch, its in-house developed smart metering system on the incomer at Meadow Feeds which measured the consumption of the entire Randfontein site. Besides providing overall reporting and monitoring of the plant's energy use, PowerWatch allowed the corroboration of savings recorded by the Eskom

tool. PowerWatch measures consumption data at a high frequency and can report amongst others energy consumption, demand, reactive energy and power factor information at intervals from 5 to 60 minutes.

The project's financial impact as calculated by the SPP toolkit amounts to R314 000 per annum. Given that the demand impact was evaluated with PowerWatch, this saving can be treated with a high degree of confidence as the credibility of the Eskom Toolkit was evaluated with PowerWatch data and resulted in only a 1,3 kW difference. The return of investment for Meadow Feeds is 18 months.

But did less energy use for lighting mean a compromise on the quality of light? The average lux

levels were measured in various areas of the plant, both before and after project implementation. On average, lux levels increased by 46% for all areas.

Embarking on projects of this nature, even if it is considered low hanging fruit, not only saves energy and money, but the Meadow Feeds energy efficient lighting retrofit has also shown a significant increase in light quality – not only through better technology, but reviewing the lighting system holistically and improving on it to ensure long-term optimal use.

Energy Cybernetics offers a three-year warranty that assures the energy efficient lighting retrofit projects sustain their energy savings as well as the required lux levels.

Enquiries: info@energycybernetics.com

Lighting appointment



Jean-Marc Degueldrehas been appointed as the senior export sales engineer, export branch at BEKA Schröder

Lighting courses coming up



IESSA
ILLUMINATION ENGINEERING SOCIETY OF SOUTH AFRICA

DURING February, IESSA will be conducting two lighting courses: 'Basic lighting concepts, vision, lamps and colour' and 'Practical photometry'.

The courses are for electrical contractors, building designers, interior and exterior decorators, lighting equipment suppliers, electrical wholesalers and counter sales, architects, electrical engineers and professionals and students.

The 'Basic Lighting Concepts, Vision, Lamps and Colour' two day course, accredited with two CPD points, is aimed at the people who would like to gain a better understanding of lighting and ends with an examination and a certificate. This course will be held on 3 and 4 February.

The 'Practical photometry' course, also with two CPD points, is for professionals who require a better understanding of photometric measurements. The topics that will be covered are: Calibration of light sources; integrating sphere photometry; and distribution goniometer photometry. This course will take place on 24 and 25 February. An exam will be written at the end of the course and delegates will receive a certificate on completion of the course.

For more information, email Sue Swash at sue@iessa.org.za

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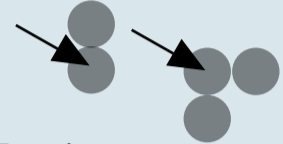
A ring of coins

Jane had laid out six coins, all R1 pieces, in two touching rows, like this.



"All you have to do," she said to Peter, "is to move the coins so that they form a perfect circle of six coins. "But", she added, "you have to move one coin at a time and it must move to a position where it is exactly touching two of the other coins – so you can't fiddle the position of the coins." Peter managed to solve the puzzle. How many moves did it require?

January solution



Two coins

Martin was wrong. The rolling coin makes two complete turns. It has already made one complete turn when it is half way round, and makes another turn in the second half of the roll.

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Editor:

Erika van Zyl

Consultant:

Ian Jandrell PrEng, BSc(Eng), GDE, PhD, FSAIIE, MIEEE

Production & layout:

Colin Mazibuko

Advertising:

Carin Hannay

Managing member:

Jenny Warwick

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Karen Grant

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