

TEEAM Specialised Group - Trading

PowerTag® – A Wearable Device Monitoring the Health of Your Electrical Distribution System

By Hastak Shah of Schneider Electric

Wearable Tech (WT) or Wearable Smart Devices (WSTs) are becoming increasingly more common. They are amongst the fastest growing trends in today's technology-driven world. Apart from being fascinating and having the "cool factor", Wearable Tech provides you with insight and information that were not easily accessible before without specialist intervention.

Wearable technologies have simply economized the tracking and sourcing of information that was not visible before.

Watches are no more just time pieces, they are now your fitness coaches measuring your heart beats, steps of walking, mapping your run, stress levels and overall keeping a constant check on your health. From offering music control, GPS and safety trackers plus Virtual Reality (VR) glasses for immersive experiences to being used as payment chips for Mastercard and Visa, there is not a thing left these days that you can't imagine a wearable tech won't be able to do! Truly unbelievable!



Moreover, beyond personal wearables, we are experiencing growing demands for Sensors and Monitoring Devices in homes, public spaces, commercial buildings and industrial complexes. Applications of these sensors and devices could range anywhere from home automation, energy management, monitoring human movements, safety and security, to the newly growing trend of workplace planning.



Hidden behind all these sensors and wearables is the gold mine of trillions of bytes of data, which when analyzed and used in the right way, can lead to significant optimization and improvement in safety, efficiency and health of people and assets.

With a noble vision to bringing Innovation at every level and to redefine the electrical distribution system, Schneider Electric's latest innovation, the smart PowerTag®, is one such modern product, which is no less than a wearable technology, and can also be used for electrical panels. PowerTag® is the world's smallest, wireless Energy Sensor and Load Monitoring Device which can provide continual insight on the health of your critical and strategic assets.



Mr Hastak Shah
hastak.shah@schneider-electric.com

A very compact device, PowerTag® is an Energy Manager and Asset Manager, all built into one simple form factor. It can be mounted directly on the incoming or outgoing slot of Acti 9, miniature circuit-breakers or Residual current devices.

As an Energy Manager, PowerTag® provides detailed and real-time information on Energy (E), Voltage (V), Current (I), Active Power (P) and Power Factor (PF) directly at the load level. PowerTag® is a Class 1 Energy Meter.



As an Asset Manager, PowerTag® keeps a constant tab on your loads, alerting the Facility Manager or Building Manager of any failure of loads due to loss of Power Supply or Overload on current. To add to the peace of mind of the Facility Manager, PowerTag® also incorporates pre-alarms on Voltage, Current and Power thresholds. PowerTag® smartly senses the changes in Current and Voltage and can notify plus alert even before the circuit-breaker trips!

PowerTag® communicates wirelessly and smartly with the Acti 9 Smartlink interface, further pushing all the measurement data and sends timely alerts to the Energy or Building Management Systems (EMS or BMS). PowerTag® is also able to e-mail the end-user or Facility Manager or even the Business Owner whenever any failure occurs or before the failure, as a pre-alarm!

Simple and fast installation of PowerTag® on MCBs and RCCBs significantly reduces the installation time for building panels with monitoring. Since it occupies no additional spaces on din-rail like traditional metering devices, the panels or switchboards can now be much smaller yet a lot smarter. Moreover, wireless communication means that there is no need for wiring, overall simplifying the lives of our Panel builder partners.

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DIALux EVO User Training

A 3-day intensive workshop style training on DIALux EVO was successfully held from 25th to 27th August 2017 at Armada Hotel, Petaling Jaya. The Training-Workshop was organised by Malaysia CIE (MyCIE).

The session was led by Mr Narendren Rengasamy who is the only Dialux Certified trainer in Malaysia and one of only two certified trainers in South East Asia. He is also the current Chairman of MyCIE/NCCIE (National Committee of CIE).

The objective of this Training-Workshop was to enable beginners to use the DIALux EVO software effectively and efficiently. The participants were taught to create a project from scratch, insert the luminaires, carry out a calculation and generate reports.

Some thirteen participants, including one participant from Indonesia, attended the Training-Workshop. Certificates of Attendance with approved BEM nine CPD hours were issued to those who successfully completed the training.



All smiles – A group photo for the album



Attentive participants – Training-Workshop in progress. Hands on immersion!



Thank you – MyCIE Secretary, Mr Glenn Tiong Chak Lim presenting the Certificate of Appreciation to the Presenter, Mr Narendren Rengasamy.



..... Continue TEEAM Specialised Group - Trading PowerTag® – A Wearable Device Monitoring the Health of Your Electrical Distribution System

Even for our EcoXpert partners, PowerTag® implementation can be a breeze since the configuration and commissioning can be done directly from the webpages of the Acti 9 Smartlink. In addition to that, PowerTag® is already integrated as a native device in all of the Schneider Electric platforms such as Com'X 510 Energy Servers, to Power Monitoring Expert, Struxureware Building Operations. Third party integration is also possible.

PowerTag® is a versatile and scalable offer, which can be retro-fitted in existing switchboards or can be installed in new sites, from that of small businesses such as Restaurants, Cafes, Fish Farms, Laundromats and others, or it can be part of a large and critical infrastructure such as for Hotels, Hospitals, Data Centres and Commercial Office Complexes.

Globally, PowerTag® has already been successfully commissioned and installed. It has proven itself well in sites varying from a Fish Farm in Singapore to a University in France, a Manufacturing plant in Brazil and a Boat Marina in Belgium, including others.

In summary, Schneider Electric enables you, as our esteemed partners and customers, to combine the unique strengths of Acti 9's offer of Protection, Control and Monitoring with PowerTag's unparalleled

features of energy and load monitoring, to enhance and improve operational costs, safety, efficiency and reliability of your electrical distribution and your building.

More detailed information on PowerTag® features, installation and applications can be found at:

1. www.schneider-electric.com/powertag
2. https://www.schneider-electric.com.sg/en/download/document/PLSED310154EN_Print/
3. <https://www.youtube.com/results?searchquery=PowerTag+Schneider+Electric>
4. <https://www.youtube.com/watch?v=20ipNr0nLTY>

Hastak Shah is a Category Manager of Connectivity Devices for the Asia Pacific region at Schneider Electric. Having worked in India and Australia in Technical and Offer Marketing, he is currently based in Singapore and is responsible for the launch, deployment and development of growing portfolio of connectivity products from Schneider Electric (in the APAC region). He has one simple mission and that is to: "Make Connectivity Everyone's Cup of Tea".



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ASEAN Sustainable Energy Week 2017

The ASEAN Sustainable Energy Week (ASEW) 2017 is ASEAN's Largest International Exhibition and Conference on Renewable Energy, Energy Efficiency & Environmental Technology. ASEW 2017 combined three unique exhibitions, namely, Renewable Energy Asia, Energy Efficiency Expo and Entech Pollutec Asia. This grand 2017 event which was held from 7th to 9th June, 2017 at the Bangkok International Trade Exhibition Centre (BITEC) hosted more than 27,000 visitors from 45 countries. The event was successfully organised by UBM Asia (Thailand).

ASEAN's energy demand is expected to increase by over 80% between now and 2035. After having grown at double-digit rates each year since 1990, energy now accounts for nearly 30% of global growth. The share of renewables in the primary energy mix fell alongside the increasing use of modern renewables such as solar, geothermal, hydro and wind power.

Thailand is heavily dependent on imported energy sources. To reduce this unhealthy dependency and thus lower Thailand's emission of greenhouse gases, the National Energy Policy has the underlying objective of ensuring an Energy Sufficiency Society and Green Growth. Alternative energy sources such as solar, wind, biomass, biogas and mini-hydropower, now account for only 12% of overall energy use in Thailand. However, the Thai Government is planning to raise this to 25% by 2021. The main policy and regulatory framework for reaching this target is the Alternative Energy Development Plan. The projected quadrupling of installed alternative energy capacity by 2021 is expected to come from dramatic advances in solar and wind power, a doubling energy, and a multi-fold increase in mini-hydropower.



Opening – VIPs officiating at the Opening Ceremony of the ASEAN Sustainable Energy Week 2017.

A 15-member delegation headed by TEEAM President, Ir Yong Ah Huat together with TEEAM International Affairs Chairman, Mr Suresh Kumar Gorasia took the golden opportunity to visit the exhibition. They also attended the Renewable Energy Conference on "Moving Towards ASEAN's Smart Cities". The Minister of Energy, Green Technology and Water, Malaysia, The Honourable Datuk Seri Panglima Dr Maximus Johnity Ongkili and the Chief Executive Officer of the Sustainable Energy Development Authority (SEDA), Ms Catherine Ridu, were also present as VIP guests at ASEW 2017. It was a win-win networking session for the TEEAM delegates. The trade visit was definitely a very fruitful one.

ASEAN Sustainable Energy Week 2017

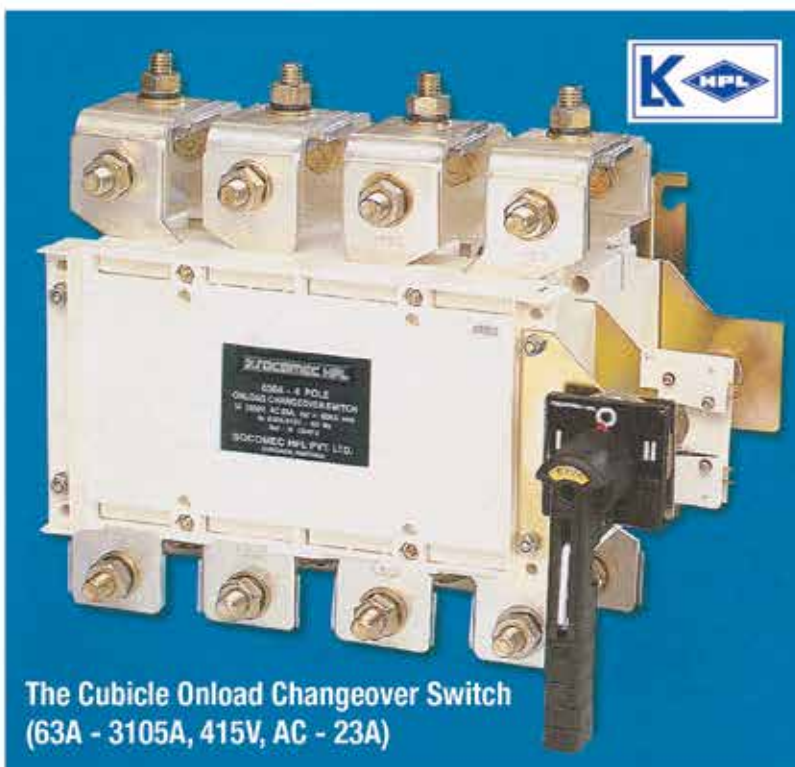


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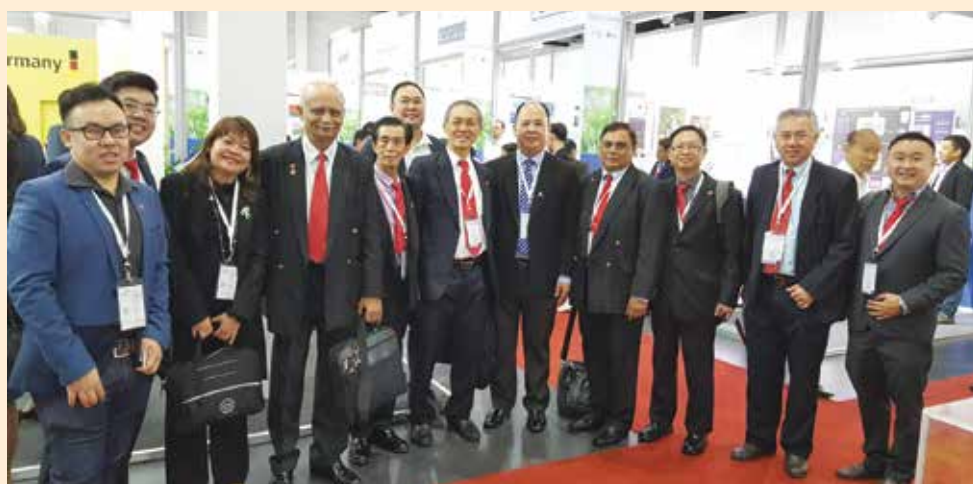
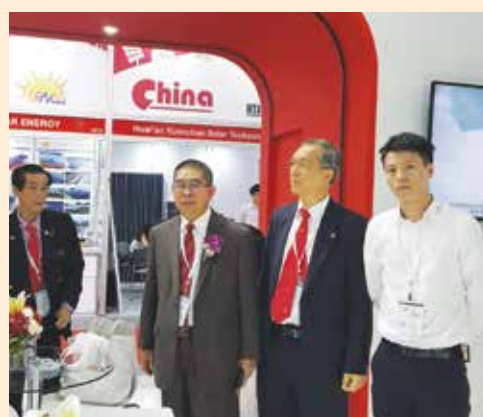
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Borneo International Energy Expo & Conference 2017

The Borneo International Energy Expo & Conference (BOEX) 2017 was held from 8th to 10th August 2017 at the Bintulu Civic Centre, Sarawak. Organised by Worldex Exhibition & Conference, the Expo was strongly supported by the Sarawak State Government, Sarawak Convention Bureau, Malaysian Cable Manufacturers Association (MCMA), Malaysian Photo-voltaic Industry Association (MPIA) and TEEAM.

BOEX aimed at accelerating the growth of Sarawak's renewable energy sector, and contributing to the country's sustainable economic development. The show aimed to upscale and mainstream the applications of energy, oil and gas, infrastructure, industrial automation, showcase innovations, and enrich deliberations by providing the

industry with an international exhibition and conference platform.

TEEAM participated in the event along with some members to tap into the Sarawak energy market. TEEAM Deputy President, Mr Siew Choon Thye presented a paper on 'Towards Sustainable LED Lighting' at the Energy Conference. Other interesting topics included 'Future Development and Opportunities for the Energy Industry in Sarawak' by Sarawak Energy, 'Solar Photo-voltaic for Sustainable Living' by the Malaysian Photo-voltaic Industry Association (MPIA) and 'Electric Cables, Design & Service Life' by the Malaysian Cable Manufacturers Association (MCMA).

Overall, it was an interesting and fruitful event.

BOEX 2017





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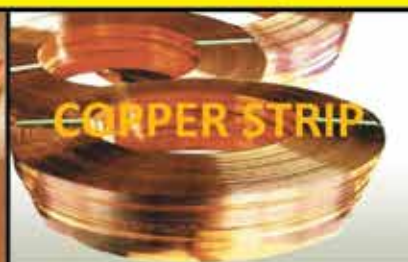
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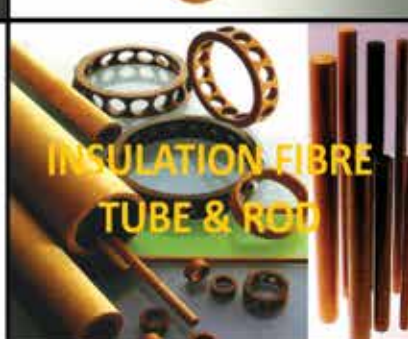


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TEEAM Specialised Group – Manufacturing

By the Chairman, Mr Simon Leong

Our new Manufacturing Committee (2017-2019) comprises members from various specialties in the Electrical Manufacturing sector. This is a good mix to represent a wider spectrum of our manufacturing members. We are here to serve and to reach out to all members' arising matters.

On 27th July, 2017, we had a strong delegate of 25 members who paid an official visit to Alpha Electric Co. Sdn Bhd's facility in Shah Alam, Selangor. The Managing Director, Mr Jerry Yeo, gave us a warm reception to his facility. Mr Choo Wei Seng of Alpha Electric then gave us a seminar on water heater safety. It was a very informative seminar. I do hope that in the future more areas will be covered in order to help a wider audience. We were given an informative tour of their showroom and demonstration of their products which were equipped with safety designed features. We would like to thank Alpha Electric once again for this warm reception.

The much talked-about topic today is Industry 4.0. It is about production which utilizes a more intelligent and efficient way through the use of information technology. The original Industrial Revolution wave has come a long way since the 1st Industrial Revolution where production was through mechanization by utilizing water and steam power. The 2nd Industrial Revolution was about mass production, assembly lines and use of electricity. The 3rd Industrial Revolution then focused on computers and automation for production.

The latest Industrial Revolution, called Industry 4.0, introduces what has been called the "Smart Factory" in which cyber-physical systems monitor the physical processes of the factory and make decentralised decisions. Over the Internet of Things (IoT), cyber-physical systems communicate and co-operate with each other and with humans too in real time, and via the Internet of Services, both internal and cross-organisational services are offered and used by participants in the value chain.

On 23rd August, 2017, our Manufacturing Committee Deputy Chairman, Mr Rajasegaran, together with other members of the TEEAM Council, attended a Networking Dinner organised by the Machinery & Equipment Industry Federation (MEIF). Topics discussed were on the current and future implementation challenges including any form of assistance from the Government to implement Industry 4.0 by our local manufacturers. The Manufacturing Committee hopes that members are able to spearhead their manufacturing processes towards Industry 4.0 with resounding success.

SIRIM, the National Testing and Certification Body, plays an important role for everyone in the Electrical and Electronics (EE) sector. On 27th July, 2017, Mr Rajasegaran (Deputy Chairman – Manufacturing Committee), Mr Lee Peng Sian (Secretary – Manufacturing Committee) and Mr Charles Lee (Member- Trading Committee) attended a Dialogue Session with SIRIM and other stakeholders for the Electrical and Electronics sector at the SIRIM headquarters. Topics that were touched on included Innovation and Research at the SIRIM Innovation Center located at Bukit Jalil, grants availability for technology transfer, and for SIRIM to drive its Testing and Certification to be more widely accepted worldwide. We were told that SIRIM provides its proprietary CB Scheme Certification that has been widely accepted.



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Suruhanjaya Tenaga, ST (Energy Commission), organised a Seminar and Awareness Dialogue session about the Certificate Of Approval (COA) for electrical items prior to selling them in the market. This seminar was hosted on 15th August, 2017 at Everly Hotel, Putrajaya. This session was attended by our Deputy President, Mr Siew Choon Thye, Chairman of the Manufacturing Committee; Mr Simon Leong, Deputy Chairman of the Manufacturing Committee; Mr Rajasegaran, Assistant Honorary Secretary, Mr Lim Sai Seong and Electrical Safety Chairman, Mr Dahari Mat Siran. It was a very informative seminar about the processes involved in obtaining the COA. There were some healthy exchanges of information among the participants with ST and SIRIM, who were also invited to provide a talk.

Mr Lee Peng Sian, who is the Secretary of the Manufacturing Committee, represented TEEAM to a Lab Session with the Ministry of Finance (MOF) for Export Study. This Lab Session was held from 14th to 25th August, 2017 at the MOF office in Putrajaya. There were numerous topics discussed during the informative Lab Session. Feedbacks were given by various sectors and we hope that upcoming government policies will drive the electrical and electronics sector to new heights.

As the Chairman of the Manufacturing Committee, I strongly encourage all manufacturing members to actively participate in TEEAM's pro-active activities and help promote healthy networkings. The Manufacturing Committee will always be ready to serve all members.



Technical Visit to Alpha Electric.



ST Seminar on Certificate Of Approval (COA) for Electrical Equipment Control.



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Time Switch: A Basic Guide For Selection

A time switch and a timer are arguably different. The switching time of a time switch is clock-based while a timer operates based on a periodical switching period which is independent of 'clock time'.

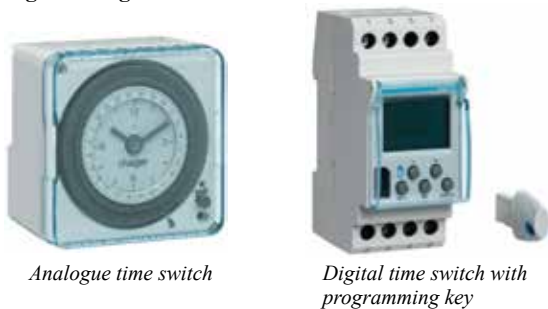
Actually, a much general way to differentiate between a timer and a time switch is by observing the construction or appearance of the device itself. A time switch is equipped with a normal clock while a timer is not. If you can observe clock time on the device, then it is a time switch.

Commonly, time switches are used in residential premises to control outdoor lighting (for example, the porch light) where a timer, say, a delay timer, may be used for ventilation fans in toilets or in projectors, to apply a delay in switching OFF these equipment.

As we focus on time switches, we need to understand the following. Time Switches are really one of the fundamental devices that may improve efficiency, thus saving costs and ultimately aiming for user convenience. It can be in the form of automatically switching off the porch/garage lights, air-conditioners, ventilation fans, pumps, and many others. Conceptually, if you have a specific time of day that you want a certain load to switch ON or OFF, then time switch should be part of your desired solution.

There are several important considerations before you proceed to select your time switch. These include:

1. Analogue or Digital Time Switches



Analogue time switch

Digital time switch with programming key

Nowadays, most of the devices have transitioned from the analogue to the digital form, including time switches. Digital versions are usually more precise and have added features, such as a memory stick where the program cycles (or their alternatives) can be externally stored and can be used promptly at anytime.

2. Power Supply (AC/DC & Voltage Ratings)

This is the basis for all electrical devices. Either you want to use the time switch with supply directly from a residential distribution box, or if it is to be used within a specific circuit, the voltage rating and nature of supply may vary from 240V~ or say, 24Vdc. The time switch voltage rating is to be matched with the specific requirements.

3. Mounting

Depending on the installation requirements, a time switch might be more convenient to be installed on the wall or inside of the electrical distribution box. A time switch can be a wall-mounted type (normally a standalone) or a din-rail mounted type.

4. Program Cycle

A time switch can be operating from a 24-hours (daily), weekly, or even annual program cycle. The selection depends on the particular application. Say, for a routine that is repeated daily 7 days a week throughout a year (e.g., house porch or garage lights), instead of using an annual cycle time switch, it can be a rather easier solution to use a 24-hrs (daily) cycle timer. There is no need to device in a 365-days time switch program.

Some of the models may have also preset timings, by which you can only program using the pre-determined period only. As an example, the slots are already preset to 7am-7pm and 7pm to 7 am only.

5. Minimum Switching Time

The minimum switching time is the minimum period for the switch to remain ON or OFF. Imagine if a time switch with a minimum switching time of 15 minutes is to be used for a school bell. The bell will be ringing for as long as 15mins before each lesson period and during recess time! That is impractical. Usually for this type of an application, people will opt for a digital time switch which has a switching time set to the minimum of 1 second. A 5~7 seconds ringing of bell seems reasonable.

6. Number of Programming Steps

The routine of the application must also be considered. A pump, for example, will have many cycles of switching which eventually may result in a huge program. Hence, the programming steps capacity of a time switch must be identified suitable for its application.

7. Built-in Back-up Power

What if the main breaker trips and causes the installation to lose power? A time switch with a built-in back-up power will be able to operate normally without losing its preset program and its time setting. Depending on the backup power or internal battery used, it may last up to 200 hours and some can even last up to 5 years at a go.

8. Built-in By-pass Switches

For occasional events or situations, one may need to over ride the setting and leave the load (e.g., air-conditioner) to be switched ON or OFF. Some time switches are available with built-in by-pass switches that take the form of a toggle or a button.

However, some of the installers prefer to have an external by-pass switch instead.

9. Number of Channels

If you want to control separate loads with overlapping timings, then you will need more than one time switch. Alternatively, you may use a time switch with multiple channels. Each channel refers to a specific timing setting and is independent of the other channels' timing. By using multiple channels (instead of adding a timer), you are saving space for installation (less devices involved).

10. Output of Contact

One important aspect which is often overlooked is the suitability of the contacts for the specified load. The rating of the contact is important to ensure that, should the load draw higher current, it will not damage or weld the contacts of the time switch. If the load application is pre-determined or has a possibility of drawing higher current than it is permitted to do so, it is always advisable to additionally use a contactor for its switching.

The type of the contacts may also be a Normally Open (NO), Normally Closed (NC), changeover or a combination of these contacts.

Apart from all of these factors, the quality of the time switch is also important. Reliability and precision are always an important aspect for due consideration. Choose a good brand and/or manufacturer. Don't ever hesitate to get their valuable advice for any further enquiries that you may have.

Muhammad Izzuddin Abdul Latif sees himself as an explorer in the world of Engineering. He's passionate about the idea of simplicity, inspired by a famous remark made by Albert Einstein: "Everything should be made as simple as possible, but not simpler."

Graduated in Electronics & Electrical Engineering from the University of Strathclyde (UK), he was with Sony as a Senior Engineer before joining the marketing team in Hager Engineering (M) Sdn Bhd. He can be contacted at izzuddin.latif@hager.my

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Korea-Malaysia Power Forum & Buyer-Seller Meeting 2017

A Korea-Malaysia Power Forum and Business Meeting was organised on 5th September 2017 at the Berjaya Times Square Hotel, Kuala Lumpur. A delegation of ten companies from the Korea Hydro & Nuclear Power (KHNP) and Korea Foundation for Co-operation of Large & Small Business, Rural Affairs (KOFCA) was in Kuala Lumpur to seek strategic win-win business partnerships with Malaysian companies.

The Power Forum aimed to introduce and present Korean products and technology to the Malaysian market; to match potential buyers

for the Korean manufacturers; and to understand the Malaysian energy sector's overview and status.

The event was officiated by YB Dato' Seri S K Devamany, Deputy Minister, Economic Planning Unit, Prime Minister's Department, Malaysia.

TEEAM extended its fullest support to all and pro-actively encouraged members to attend business partnering meetings with the Korean companies. The event was ably managed by KVSIR Consulting. It was an interesting and fruitful event for all who were present.

Korea-Malaysia Power Forum & Buyer-Seller Meeting 2017



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The Importance of Upgrading Your House Wiring to Accommodate Higher Power-Rated Instant Water Heater with Rain Shower

By Mr W S Choo of ShowerTec Industries Sdn Bhd

Introduction

The Electric Instant Water Heater is a popular electrical appliance used in Malaysia. Millions of units have been installed in households. It has been estimated that more than 500,000 units had been installed in the year 2016 alone. Due to its simplicity and affordability, the Electric Instant Water Heater is mainly used for direct showers. It can be seen in almost every Malaysian household, namely, in landed houses, high-rise condos, serviced apartments, chalets, budget hotels or even in some saloons.

In recent years, due to product improvement and market demands, we have seen the positive trend of manufacturers supplying water heaters fitted with luxury rain showers, having a higher power-rated heating element built in it (Fig 1). Due to the higher flow rate of the Rain Shower, and in order to produce warmer water from the rain shower, its power rating had risen when compared to the olden days. In 1990, this product was only rated at 3.0kW. In 2000, the rating was brought up to 3.3kW. In 2005 it was once again brought up to 3.6kW whereas in recent years, it had been rated from 3.8kW to 4.2kW (or even higher).

Using Ohm's Law, $P = I \times V$ where $I = P/V$, the 4.2kW, 230V electric instant water heater will have a loading current of 18.26 Amperes. This simply means that the 2.5mm² cable for a 13A socket outlet will no longer be able to withstand the load. Refer to Figures 2 and 3. The majority of our homes are fixed with water heaters using this method.



Figure 1: Instant Water Heaters now come with Rain Showers. In recent years, their power ratings have increased over time.

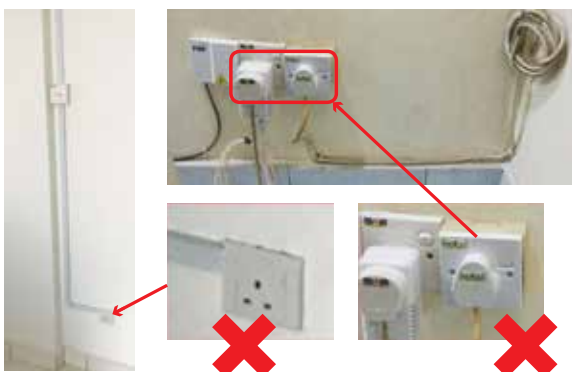


Figure 2: As seen in many Malaysian homes, the instant water heater's electric power is looped from the nearest point to the bathroom. This leads to power the instant heater, where the internal cable from the Distribution Box (DB) is 2.5 mm². This is undersized and dangerous. It may become a fire hazard in the long run.

Risk of Fire and Electrocutation

Refer to Figure 2. In many Malaysian homes, the electric power is looped from the nearest 13A socket point to the bathroom. The cable is only 2.5mm² from the DB and it cannot withstand a load higher than 13A. Worst still, the point where the loop is found is shared with other home appliances, namely, the washing machine, computer, modems, etc. This could be a trigger point for fire hazards and electrocutions to take place.



Figure 3: As seen in Malaysian homes, the instant water heater's electric power is connected from the 13A/15A socket outlet, in the shower cubicle, and it is used to run the heater with more than 15Amps supply. This is dangerous and overheating of the socket outlet is possible.

Referring to Figure 3, it has been observed in recent years that sockets were provided on top of shower units for new residential units whereat the installers simply fixed 13A/15A plugs onto the sockets to power the Electric Instant Water Heater. After some time of usage, especially during rainy days, users tend to shower with maximum power on, and this will cause the socket and plug to melt or to be burnt.

[When a new heater meets the old method of installation] = Risk of Fire and Electrocutations

Figure 4 shows one of the case studies of electrocution via the water heater. It was a newly-bought shower heater with a higher-rated power supply. However, it was installed with old cabling (undersized) via a 13A plug and socket. The point of current leakages was identified as coming from the overheating of the 13A socket outlet, which caused the metal hose to energise.



Figure 4: Case study of electrocution, where a new heater (with higher-rated power) was installed using the old method of installation, causing overheating of the socket, and resulting in an energized metal hose. Unfortunately, the user was electrocuted during the shower.



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..... Continue The Importance of Upgrading Your House Wiring to Accommodate Higher Power-Rated Instant Water Heater with Rain Shower

Guidelines for the Design, Installation, Inspection, Testing, Operation and Maintenance of Water Heater Systems

The recent Energy Commission's (Suruhanjaya Tenaga - ST) Water Heater Guidelines launched on 24th Aug 2017 has successfully addressed the above problems in a very comprehensive manner.

- In Table 6, Clause 4.1.4.d clearly indicates the minimum conductor size, MCB/RCD rating.
- Clause 4.1.4 clearly indicates that the plug and socket shall not be used, and if there is a connection in between, only an approved connector/connection box shall be used. For connection within the shower cubicle, the connection box shall be IPX5-rated.
- Clause 4.1.5 clearly indicates that if the cable from the 2 pole switch (outside the bathroom) is not directly terminated into the heater, a correctly-sized copper flexible cable with maximum 1.5 meter length shall be used to connect the water heater to the connection box.

For the free download version of the ST Guidelines, you may visit:
<http://www.st.gov.my/index.php/en/downloads/category/142-guidelines-electrical-safety>

Table 6: Minimum conductor sizes.

Water Heater Rating @ 230V	Load	MCB/RCD (Minimum)	Live	Neutral	PE
≤ 2,856W	12.4A	16A	4 mm ²	4 mm ²	4 mm ²
> 2,856W to ≤ 3,570W	15.5A	20A	4 mm ²	4 mm ²	4 mm ²
> 3,570W to ≤ 4,462W	19.4A	25A	4 mm ²	4 mm ²	4 mm ²
> 4,462W to ≤ 5,711W	24.8A	32A	4 mm ²	4 mm ²	4 mm ²
> 5,711W to ≤ 7,139W	31A	40A	6 mm ²	6 mm ²	6 mm ²
> 7,139W to ≤ 8,924W	38.8A	50A	10 mm ²	10 mm ²	10 mm ²
For ratings more than those which are specified in the above table, the cable shall be sized as per MS IEC 60364.					

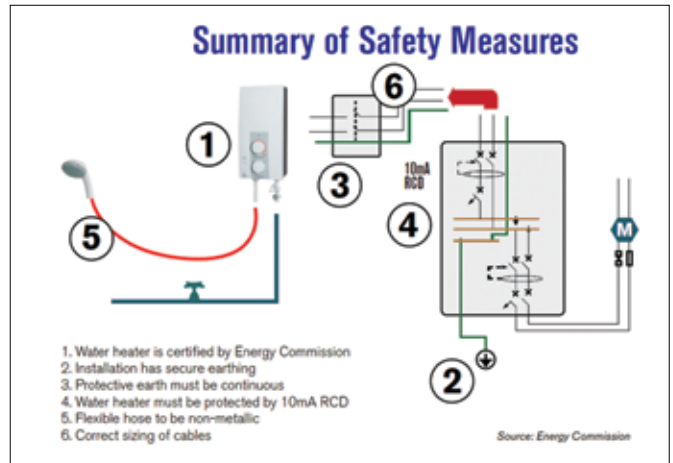
Clause 4.1.4.d, Table 6, shows appropriate cable sizes corresponding to power ratings of the water heater

- i. Only fixed and permanent connection is allowed, 13A/15A plug and socket shall not be used as shown in Figure 5. If there is a connection in between, only approved connector and connection box shall be used. For connection within the shower cubicle and below the ceiling, the connection box shall be IPX5 rated;



Figure 5: Wrong Electrical Connection

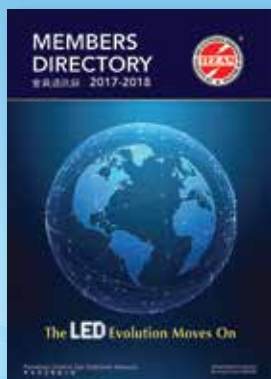
Clause 4.1.4.i shows that the water heater should not be powered by a 13A/15A plug and socket. Only fixed and permanent connections are allowed. If there is a connection in between, only approved connector/connection box shall be used.



Summary:

- 1) The Electric Instant Water Heater is probably the 'highest' current consumption appliance used at home. Do not loop the power from the nearest socket. Before the purchase of the water heater, do ensure that your home wiring system complies with the latest requirement, that is, it has a 2-pole switch, correct sizing of cable and a connecting box which is able to withstand the maximum current consumption of the heater.
- 2) Remove the 13A/15A socket and plug. Use the approved connector/ connecting box and the approved plus correctly-sized flexible cables to run the Electric Instant Water Heater.
- 3) Use only water heaters that are approved by SIRIM and ST. You may make use of www.malaysiancertified.com.my to check for more details.
- 4) Regularly test the RCCB in your house Distribution Box to ensure its functionality. It should be tested 4 times annually, according to the requirement by the manufacturer.
- 5) A house wiring system is recommended to be inspected by qualified electrical contractors every 10 -15 years, for any signs of deteriorations.

Mr W S Choo is the Factory Manager of ShowerTec Industries Sdn Bhd, a Manufacturer of Electric Water Heaters. He is also an active Committee Member of the SIRIM Working Group WG02 for Household Heating Appliances, and Working Group WG01 for Household Electric Motor Appliances. Over the years in the industry, he has helped by suggesting constructive ideas and changes in developing the Code of Practice, Safety of Household and Electrical Appliances for the MS and IEC standards.



TEEAM Members Directory 2017-2018

The TEEAM Members Directory 2017-2018 has just been released. This authoritative publication is a highly useful and excellent reference material for both the local and E&E business communities and also for all overseas buyers too who are keen to expand their businesses worldwide. It is an affordable 1-stop reference book which contains the following Value-Added features:

- TEEAM Members' Business Contact Details
- A Ready Guide to Malaysian Ministries, Government Departments, Statutory Bodies & Utilities
- List of ACEM Panel Firms (M&E Disciplines)
- Contacts of Embassies and High Commissions in Malaysia
- List of MATRADE's Overseas Network (46 offices/representatives worldwide)
- AFEEC, FAPECA & IFEC Members' Contacts

For purchase, please contact the TEEAM Secretariat at:

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TEEAM Corporate Social Responsibility Programme

TEEAM started a Corporate Social Responsibility (CSR) programme to help Charitable Organisations who are in need of electrical works, as a way to contribute back to society. The pilot project was initiated by the Ex-CSR Chairman, Mr Leong Kam Seng, whereby electrical repair works were carried out at Rumah Sejahtera Seri Kembangan (Seri Kembangan Old Folks Home). The project was

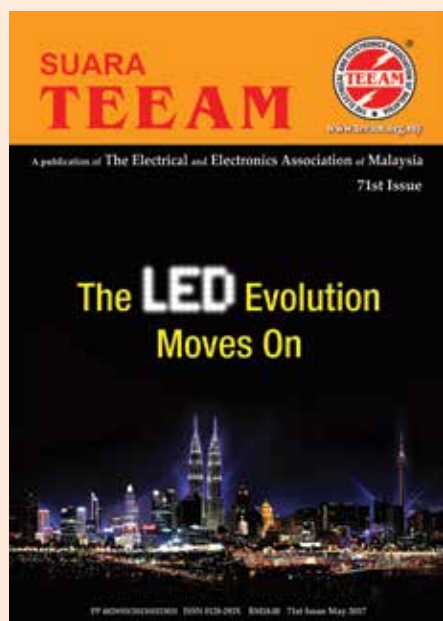
completed in July. The CSR Committee headed by the new Chairman, Mr How Chee Seng, visited the Home on 12th July, 2017 where a Certificate of Appreciation was presented to TEEAM by the Home's Management Committee, in recognition of TEEAM's valuable contributions.

Other CSR projects are in the pipeline.

TEEAM CSR Programme at Rumah Sejahtera Seri Kembangan



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COMPANY INTRODUCTION

Master Tec Wire & Cable was establishing since year 2005, with initial production for PVC cable and Electronics wires & Cables. Within 10 years **Master Tec Wire & Cable** grows from a shop lot factory to current manufacturer plant size of 22,270m² with buildup area 12,326m².

As today, we take pride to be one of the Malaysia premier manufacturers supplying Low Voltage Power cable, Control Cable, Instrumentation cable, Fire Resistance Cable for various electrical and communication connection application.

Our R&D team continues developing and produces high quality wire and cable that can meet virtually every electrical application for both domestic and global demand. We carry an extensive line of cables and customize-made wires and cable for various application.

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Subcon Thailand 2017

Subcon Thailand 2017 is ASEAN's Largest International Industrial Sub-contracting and Business Matching Event, and it was co-located with Intermach 2017, ASEAN's Largest International Machinery & Sub-contracting Exhibition. Both events were held from 17th to 20th May 2017 at the Bangkok International Trade & Exhibition Centre (BITEC). They were co-organised by the Thailand Board of Investment (BOI), Thai Sub-contracting Promotion Association and UBM Asia (Thailand), with the support of the Thailand Convention & Exhibition Bureau (TCEB).

Subcon Thailand 2017 showcased products and services from more than 400 industrial parts makers in the Automotive, Electrical & Electronics (E&E), Machineries, Construction and Medical Devices

industries from ten countries including Thailand, ASEAN, Japan and Taiwan, amongst others.

There were interactive Business Matching Programmes organised by BOI to facilitate business linkages between the industrial parts buyers with suppliers and manufacturers. A whopping 5,216 Business Matching Meetings took place and business transactions valued at 8.6 billion THB (Thai Bahts) were successfully negotiated, with more expected in follow-up deals.

TEEAM took part in the exhibition at the invitation of UBM Asia (Thailand) to gain exposure to the Thai E&E market. A 4-member delegation from TEEAM visited the event. Subcon Thailand 2018 is scheduled for 16th to 19th May 2018.

Subcon Thailand 2017



Cable & Wire Indonesia 2017

Cable & Wire Indonesia 2017 took place from 17th to 19th May, 2017 at the Jakarta International Expo Kemayoran (JIE expo) in Jakarta, Indonesia. It was co-located with PowerGen Indonesia 2017, Solartech Indonesia 2017, INALIGHT 2017, INATRONICS 2017 and Battery Indonesia 2017. The Show served as one of Indonesia's most prospective one-stop exhibition for Cable, Wire, Power Generation, Solar Panel, Lighting, Battery and Electronics Components all housed under one roof. The exhibition was an exclusive marketplace for the targeted visitors and provided a unique opportunity for insulated cable, wire and other relevant industries to demonstrate innovation, the latest products and best practices for those needing such solutions.

The resounding success of this six-in-one exhibition which attracted 435 exhibiting companies, hailing from seven countries is truly a welcome sign. Total visitors was a whopping 16,118 originating from 27 countries. The exhibition occupied a

total area of 10,500 sqm. TEEAM took part in the exhibition at the invitation of the Organiser, GEM Indonesia. It was certainly a good exposure to the Indonesian market. TEEAM extends sincere thanks to GEM.



TEEAM's Booth





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How to Avoid Electrical Fires at Home

Challenges and Opportunities in the Electrical Industry – Part 29

By Ir Chew Shee Fuee KMN, TEEAM Immediate Past President

1. Faulty Electrical Outlets and Old Appliances

Most electrical fires are caused by faulty electrical outlets and old outdated appliances. Other fires are started by faults in appliance cords, receptacles and switches. Never use an appliance with a worn out or frayed cord which can send heat onto combustible surfaces like floors, curtains and/or rugs that can easily start a fire.

Check your sockets regularly.

2. Extension Cords

Misuse of extension cords is another common electrical fire cause. Appliances should be plugged directly into the outlet and not plugged into an extension cord for any length of time. Only use extension cords as a temporary measure. If you do not have the appropriate type of outlets for your appliances, hire a QUALIFIED electrician to install new ones.

Don't overload any adaptor or socket – especially with appliances such as kettles, irons or heaters that consume high electrical current. It is safer to have extra sockets installed if needed.

Extension cords are extremely common causes of household fires. In older homes especially, there just aren't enough plugs needed to house all of your electrical gadgets, and for this reason extension cords are an all too familiar sight. This isn't usually a problem in itself until people start plugging extension cords into extension cords! Often this exceeds the current rating for the appliance. This could cause the plug in the wall to overheat and eventually catch fire. If you have to place an extension cable into another extension cable, then you really do need to invest in another plug socket.

3. Wiring

Outdated wirings often cause electrical fires. If a home is over 20 years old, it may not have the wiring capacity to handle the increased amounts of electrical appliances (such as computers, wide-screen televisions, video and gaming players, microwaves and air-conditioners, etc) being used in today's average home.

Check the condition of your wiring. This should be done when you move into a new home and then once every 10 years.

4. Install Smoke Detectors

Install smoke detectors on every level of the home, inside each bedroom and outside each sleeping area.

Instead of waiting for the law to impose the installation of such detectors, it is in our interest to install them in our homes for our overall safety.

5. Establish Evacuation Plan

Establish an evacuation plan that can be used in case of an emergency and do practice the plan with your family.

Fatal tragedies have occurred when victims could not get themselves out of their rooms to safety.

6. Test RCDs

RCDs are used to provide shock protection as well as fire protection.

Regular testing of RCDs will ensure that the protection is still in good working order.

7. Installing Arc Fault Circuit Interrupters (AFCI)

An AFCI is a product that is designed to detect a wide range of arcing electrical faults, to help prevent the electrical system from being an ignition source of a fire. Conventional overcurrent protective devices do not detect low level hazardous arcing currents that have the potential to initiate electrical fires.

An AFCI device uses advanced electronic technology to "sense" the different arcing conditions. While there are different technologies employed by the various AFCI manufacturers to measure arcs, the end result is the same, that is, by detecting parallel arcs (line to line, line to neutral and line to ground) and/or series arcs (arcing in series with one of the conductors).

How does an arc fault detection work?

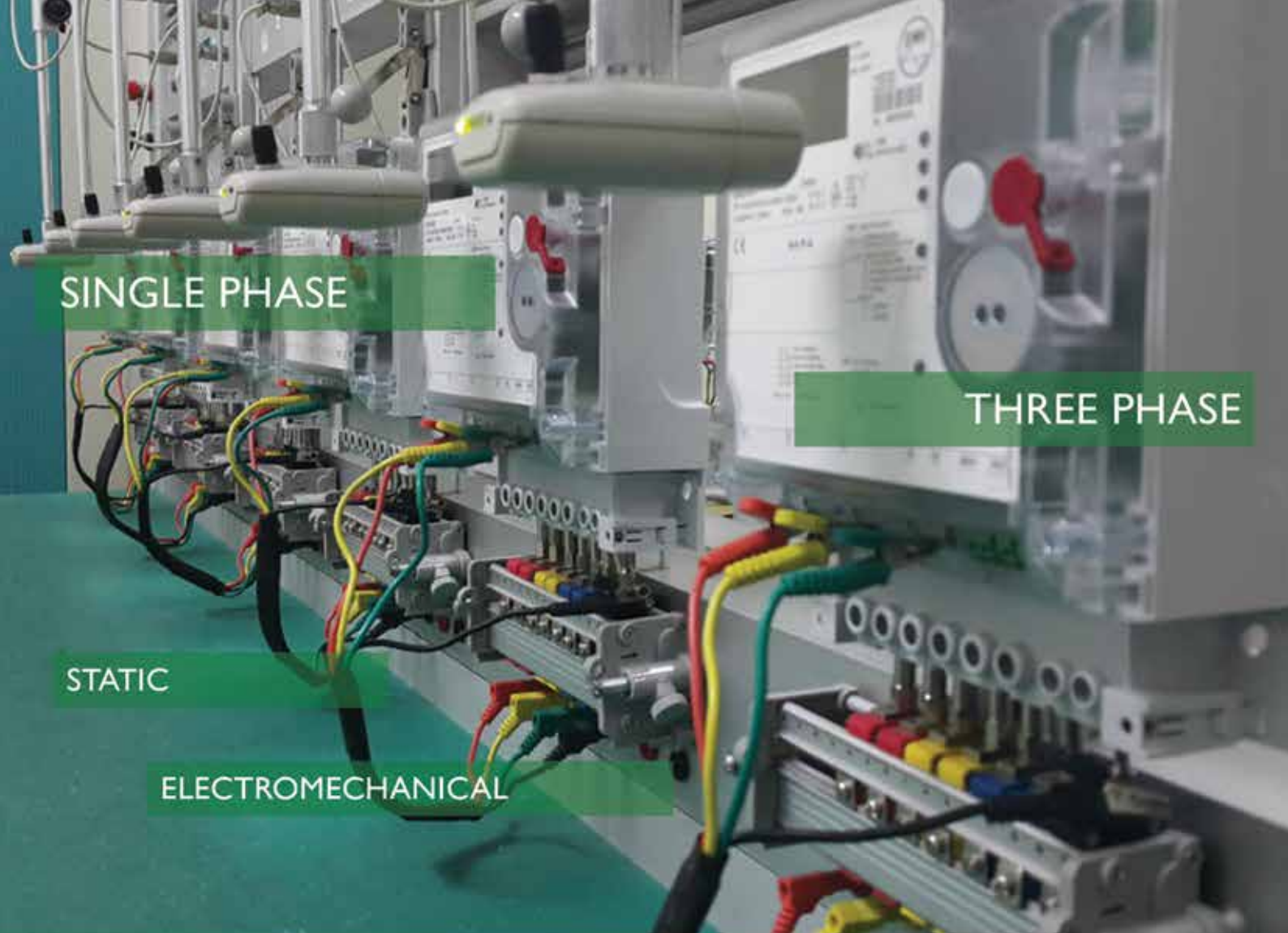
In essence, the detection is accomplished by the use of advanced electronic technology to monitor the circuits for the presence of "normal" and "dangerous" arcing conditions. Some equipment in the home, such as a motor-driven vacuum cleaner or furnace motor, naturally create arcs. This is considered to be a normal arcing condition. Another normal arcing condition that can sometimes be seen is when a light switch is turned off and the opening of the contacts creates an arc.

A dangerous arc, as mentioned earlier, occurs for many reasons, including damage to the electrical conductor insulation. When arcing occurs, the AFCI analyses the characteristics of the event and determines if it is a hazardous event. AFCI manufacturers test for the hundreds of possible operating conditions and then programme their devices to constantly monitor the normal and dangerous arcing conditions.

Ir Chew Shee Fuee KMN B Sc (Hons) (Strathclyde), PEng, CEng, FIEM, MIEE Member, IEEE Member, 1st Grade Electrical Engineer (Competent up to 500 kV).

Ir Chew was President of The Electrical and Electronics Association of Malaysia (TEEAM) for 2001-2005 and 2013-2017. He is the President of the ASEAN Federation of Electrical Engineering Contractors (AFEEC) for 2016-2018. He is the Chairman of The Institution of Engineering & Technology (IET) Malaysia Local Network. Ir Chew is the Managing Director of G H Liew Engineering (1990) Sdn Bhd and Chris Chew Electrical Consultant. He graduated from the University of Strathclyde, Glasgow with a B Sc (Hons) in Electrical & Electronics Engineering. He is a Professional Engineer and is also licensed by the Energy Commission as a Competent Engineer (without voltage limits) and a Service Engineer to carry out electrical testing up to a voltage of 500 kV.

Ir Chew has more than 30 years of industry experience in electrical control and relay protection. He is also specialized in electrical site tests on power equipment, electrical fault investigation, service and maintenance of electrical switchgears and relays. His work also includes electrical supervision of sub-stations and electrical audit. He also presents lectures on electrical apparatus and the protection system. He is Vice-Chairman of MyENC (Malaysian Electro-Technical National Committee) and Member of Technical Committees (TCs) and Working Groups (WGs) in Standards Development. He can be reached at E-mail: sfchew@ghliew1990.com.



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Membership Recruitment Campaign

TEEAM appeals to members to help in recruiting companies and individuals to join the Association to strengthen TEEAM's membership base. Incentives are offered by the Membership Recruitment Committee. Members introducing a Company Member will be entitled for two points, while introducing an Individual Member will be entitled for one point. The points can be accumulated and used to redeem free advertisements in Suara TEEAM or redeem membership subscription.

For details, please contact the TEEAM Secretariat at Tel: +603 – 9221 4417. The membership application form can be downloaded from the TEEAM website at www.teeam.org.my.

New Members

The following new members have been approved and accepted by the TEEAM Council (as at 24th August 2017). A warm welcome to all the new members and special appreciation is extended to those who introduced these new members. For those who are not yet members..... why wait? Join us now and find out how our Association can offer our value-added services to you and your highly esteemed Companies!

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DNF Cable Sdn Bhd 37, Jalan Perdana 4/1, Pandan Perdana, 55300 Kuala Lumpur. Tel: +603-9200 9888 Fax: +603-9211 3168 E-mail: francislim@dnfcable.com Website: www.dnfcable.com Contact Person: Mr Francis Lim Business: Manufacturing of cables.	Draka (Malaysia) Sdn Bhd Lot 48, Jalan Industri 13, Alor Gajah Industrial Estate, Alor Gajah, 78000 Melaka. Tel: +606-556 3833 Fax: +606-556 3282 E-mail: tzewei.pang@prysmiangroup.com Website: www.prysmiangroup.com Contact Person: Mr Pang Tze Wei Business: Supply all types of cables and wires.
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Maxvic Sdn Bhd No. 8, Jalan Utarid U5/13, Seksyen U5, 40150 Shah Alam, Selangor Darul Ehsan. Tel: +603-7845 2608 Fax: +603-7845 2127 E-mail: spyap@maxvic.com.my Website: www.maxvic.com.my Contact Person: Mr Cheng Chee Sen Business: Manufacturing of water heaters.	David Chan Way Sang C-21-10, Shamelin Star 36A, Jalan 4/91, Taman Shamelin Perkasa, 56100 Kuala Lumpur. Tel: +6019-507 6338 E-mail: david@integersprings.com Business: Consultancy.

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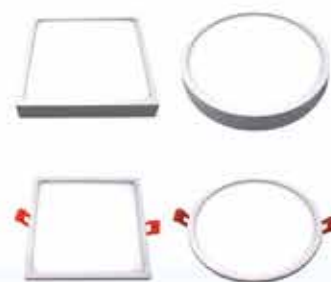
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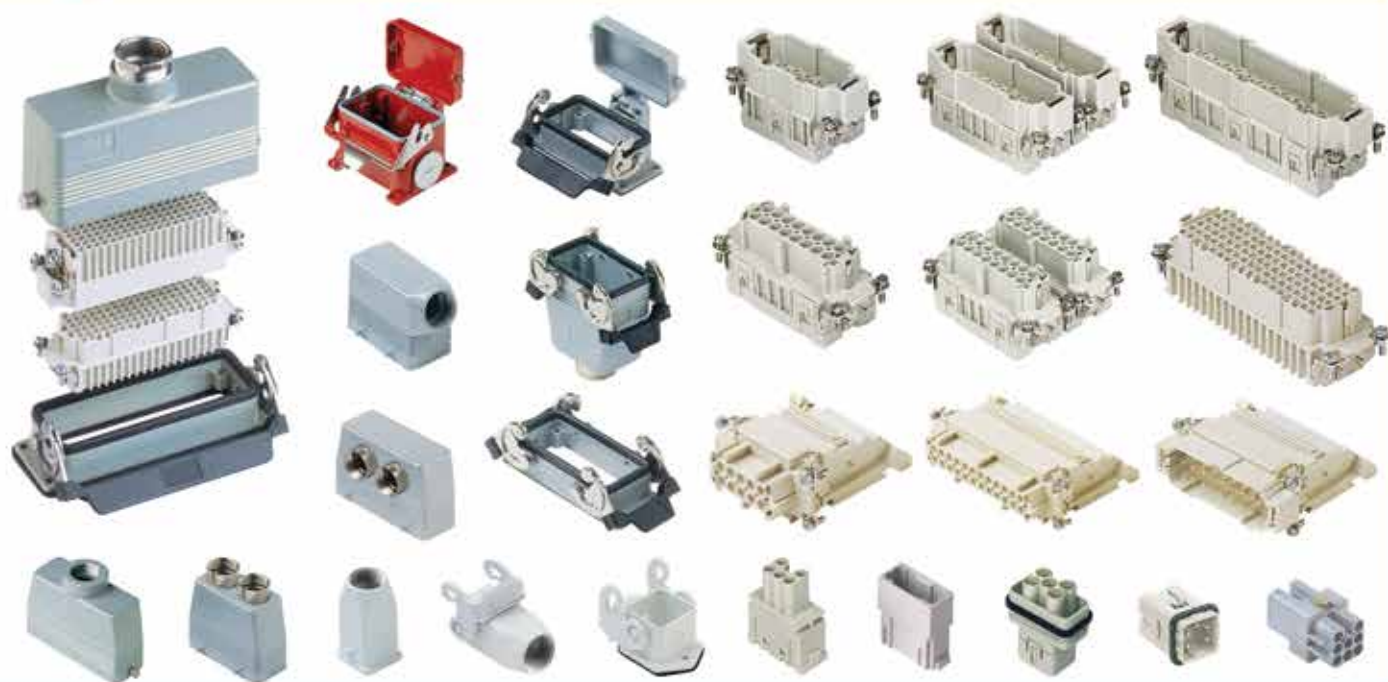
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