Consider Photopic, Scotopic, Mesopic Vision before Specifying Lumen Requirements

Are all lumens equal? Consider how the human eye perceives light.

Merging photopic, scotopic vision cuts energy costs, boosts visibility perception.

The science of measuring light, in terms of how the human eye perceives its brightness, is called photometry.

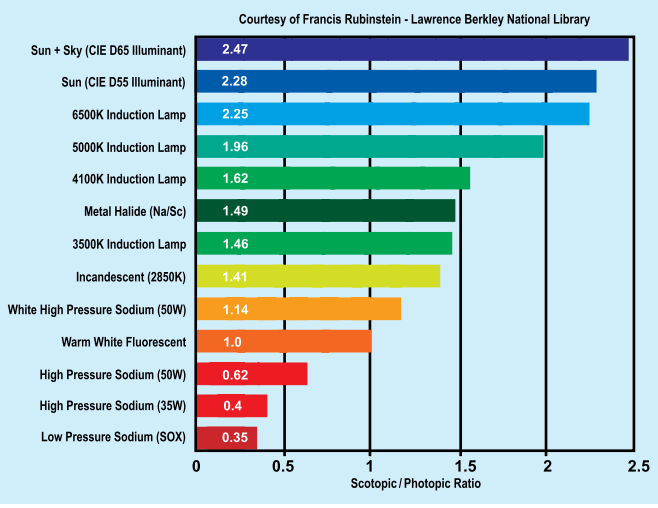
The eye has two primary light-sensing cells in the retina, known as photoreceptors, called rods and cones, referring to their geometric shapes.

- **Cones** process visual information under daytime, or photopic light levels
- **Rods** are used in near-complete darkness, referred to as scotopic conditions

Photopic light levels have excellent colour discrimination, where colours seem the same under scotopic vision.

The ratio of scotopic luminance (or lumens) versus photopic luminance in a lamp is called the **S/P ratio**, which is a multiplier that determines the apparent visual brightness of a light source as well as how much light a lamp emits that is useful to the human eye, referred to as visually effective lumens (***VELs***).

Generally, lamps with high S/P ratios provide sharper vision both outdoors and indoors. So, a 200-watt magnetic induction lamp would appear just as bright or brighter than a sodium vapor or metal halide of twice the wattage.



Scotopic and Photopic Ratios

Here's the math showing a 50% energy reduction:

- A 400w Metal Halide lamp has a manufacturer's rating of 54.6 lumens per watt; so, 400 x 54.6 = 21,840 lumens x 1.497 (S/P ratio) = 32,541 VELs.
- A 200w Induction lamp has a manufacturer's rating of 81 lumens per watt; so, 200 x 81 = 16,200 lumens x 1.96 (S/P ratio) = 31,752 VELs.

Mesopic – Combining Rods and Cones

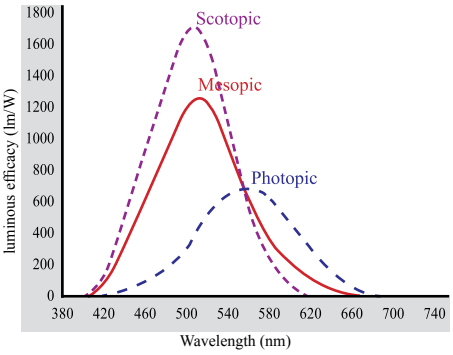
Between photopic and scotopic light levels is a range called mesopic, which are low – but not dark – outdoor lighting conditions where both cones and rods combine photopic and scotopic response to process visual information. Most artificial light systems emit outdoor light levels in the mesopic range.

Mesopic

Now, as we mentioned in a previous article, the seven colour bands produced when sunlight is refracted through a prism – red, orange, yellow, green, blue, indigo and violet – are part of the electromagnetic spectrum that's visible to the human eye and all have different wavelengths.

To describe how the eye responds to those wavelengths, the lighting industry uses the term luminosity function, also called luminous efficiency function.

Photopic luminosity function best approximates the response of the human eye in daylight and scotopic luminosity function is used to describe the eye's response to extremely low light (nighttime) levels.



Scotopic – Photopic – Mesopic

Commercial photometry is important for lighting installers and their clients in choosing the best locations to install fixtures as well as ensuring maximum efficiency of lighting systems.

Problem is, commercial photometry only considers the photopic luminosity function, which was established in 1924 by the International Commission on Illumination (CIE), and has almost always been recognised as underestimating how the blue and violet end of the spectrum – where the eye shifts in scotopic conditions – contribute to perceived luminance.

In the past, lighting manufacturers used light meters to determine lumen output, or luminous efficacy, of a fixture in order to gain maximum energy efficiency. But these devices relied only on photopic conditions, in keeping with the decades-old assumption that light sensitive rods only kicked in at low-light, or nighttime, conditions.

For lighting installers and their clients, that meant the effectiveness of certain lighting products used in nighttime applications, such as street lighting, in terms of energy efficiency and visual safety, was being underestimated.

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In addition, relying only on photopic luminous function to measure nighttime illuminations requires some light sources to use excessive energy to generate the necessary light level.

LED Street Lighting

Realising the potential cost-savings that an alternative measure of lighting scenarios could produce coupled with the fact that photopic and scotopic were not mutually exclusive and that rods were active, not only in low-light but also during interior light levels, researchers set out to develop a new measurement.

Bridging the Gap between Scotopic and Photopic

Researchers at the Rensselaer Polytechnic Institute's Lighting Research Center (LRC) developed a "Unified System of Photometry," which integrates both the scotopic and photopic luminous efficiency functions into a measurement system that can be used for any light level, including mesopic, perceptible to the eyes.

LRC researchers estimated that about half of U.S. streetlights could cut energy consumption by about 50 percent – annually saving one billion kilowatt hours – using a Unified System of Photometry to design more energy efficient lamps, including LEDs, without sacrificing perceptions of visibility and safety.

Cutting Energy Consumption in Street Lighting

Field demonstration results in rural and suburban areas of Connecticut, Massachusetts and Texas verified that by implementing the Unified System of Photometry the street lighting system consumed 30 to 50 percent less electric power and the residents believed they could see better and said they felt safer, when compared to lighting systems designed using the traditional system of photometry.

Commenting on the field tests, LRC's Director of Energy Programs, Peter Morante, described how, in nighttime conditions, the human eye is more sensitive to short-wavelength light, which produces cool tones like blue or green, as opposed to long-wavelength light, which produces warm tones like yellow and red.

"By replacing traditional, yellowish high-pressure sodium (HPS) lights with 'cool' white light sources, such as induction, fluorescent, ceramic metal halide, or LEDs, we can actually reduce the amount of electric power used for lighting while maintaining or even improving visibility in nighttime conditions," Morante said.

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TEEAM Specialised Group – Engineering Construction & Services Electrical Safety & Inspection: Back To Basics

By Secretary, Ir Kok Yen Kwan

Electrical safety practices is unfortunately one of the essential precautionary measures in our daily life that is increasingly being taken for granted – both in the building and construction industry, and to a larger extent, by the public. Although the dangers associated with the use of electricity are well-known and regulations are in place in Malaysia, accidents involving electricity continue to happen, and often resulting in fatalities.

According to statistics released by the Energy Commission (EC) of Malaysia, a total of 536 electrical accident cases were reported from Year 2002 to 2010, with 273 or 50.93% being fatal. And among the main causes of these cases include:

- Improper Installation & Maintenance (37%),
- Work Safety Procedures Not Complied (30%),
- Trespassing into Electrical Installations (10%),
- Misuse of Wiring System (3%),
- Others (20%).

Going back to basics, one has to remember that even the briefest contact (under normal or faulty conditions) with electricity at approximately 50V for AC or 120V for DC can result in serious consequences to a person's health and safety. Contacts with higher voltages (leading to higher current flows) can be even more severe, such as severe burns and other bodily injuries. Table (1) best summarises the typical effects of electricity shocks based on exposure.

Current (in mA)	Effect
0.5 – 3	Tingling sensation
3 – 10	Muscle contractions (painful)
10 – 40	"Can't Let Go" phenomena
30 – 75	Respiratory paralysis (possibly fatal)
100 – 200	Ventricular fibrillation (likely fatal)
200 – 500	Heart clamps tight
1500	Tissue & organs begin to burn

Table (1): Typical effects on the human body based on exposure

[Source: Workplace Safety Awareness Council, USA]

Electrical Risks

As such, any person conducting or undertaking his/her duties in a 'live' electrical environment MUST ensure that they take reasonably practicable care in minimising or better still, eliminating all electrical risks that may be present in that environment.

To minimise or eliminate electrical risks, one has to be able to positively identify hazards that may potentially cause harm, i.e. hazards arising from either electrical equipment or installations, such as: -

- Inadequate or inactive electrical protection (often a result of cost-cutting exercise and thus resulting in the use of sub-standard systems/products);
- Aging of electrical equipment and installations;
- Conditions of electrical equipment used, e.g. wear & tear of 'plug in' electrical accessories that may be moved around from site to site, including extension leads, and thus liable to damage;
- Design change or modification (often these changes are not properly recorded, e.g. As-Built Drawings made available at site are often found to be still the Design Drawings);
- Improper use of equipment (e.g. standard indoor-type switched-socket-outlet being used for outdoor environment, sometimes even near wet areas such as swimming pools).

Upon identification of all the potential risks, it is then important to assess the risks, i.e. to consider the consequences of such risks if someone is exposed to the hazards and the likelihood of the risk happening. Conducting a risk assessment can help to determine the severity of an electrical risk; whether existing counter-measures are sufficient; further actions that may be required and the urgency that such action needs to be taken.

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Legal Requirements

Having discussed on electrical risks, let us further remind ourselves on some of the salient provisions made under the Electricity Regulations 1994, such as: -

- Reg. 12 – all electrical wiring work shall be carried out under the direct supervision of an EC-Registered Wireman. Upon completion of such work, the responsible wireman shall certify a Supervision & Completion Certificate;
- Reg. 13 – Upon completion of work higher than low voltage, the installation shall be tested by an EC-Registered Electrical Services Engineer;
- Reg. 67 – Installations shall be visited and inspected by EC-Registered Competent Persons of appropriate grades and in accordance to the frequencies of visits as stipulated;
- Reg. 75 – Only EC-Registered Electrical Contractors are permitted to carry out electrical installation work;
- Reg. 110 – Stipulations of the inspections & tests to be carried out at appropriate time intervals for the purpose of maintenance of installation;
- Reg. 111 – No person, except a competent person or a person acting under the control of a competent person, shall undertake to carry out any repair, replacement, servicing or cleaning of any equipment which forms part of an installation;
- Reg. 112 – Person engaged to work in connection with any installation or equipment shall be adequately protected from danger, and the responsibility for such protection shall be on the licensee or supply authority, owner, management or occupier of the installation, his servant or agent, as the case may be.

To conclude, it is TEEAM's fervent hope that all our members (Contractors, Suppliers, Manufacturers, Systems Integrators, Competent Personnel, etc.) can work together to lead by example and elevate the industry's electrical safety standard to a higher level.

Ir Kok Yen Kwan is a current Council Member of The Electrical and Electronics Association of Malaysia (TEEAM) and is the Secretary of the Engineering Construction & Services (EC&S) Specialised Group. He is registered both as a GBI Facilitator (GBIF) with GreenBuildingIndex Sdn Bhd and Electrical Energy Manager (EEM) with the Energy Commission of Malaysia.

He has previously worked in the building industry as an Electrical Consulting Engineer and is currently focusing his work on electrical safety inspection, sustainability and energy management.

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TEEAM Specialised Group – Manufacturing

By the Chairman, Mr K Subramaniam

The government is now soliciting inputs from the private and public sectors for the preparation of the 11th Malaysia Plan (RMK 11). TEEAM has submitted a strategy paper to the Ministry of International Trade & Industry (MITI) for inputs into RMK 11 to boost growth of the E&E industry in Malaysia.

Introduction

The following strategy paper discusses the current research and manufacturing climate in Malaysia, where the local electrical and electronics sector is concerned. It discusses the issues and constraints being faced by the industry under the current climate, and will then offer inputs and suggestions on how to boost the total contribution of the industry towards the nation's GDP, technological capabilities, and skilled manpower. The paper will address the following topics: innovation, high skilled manufacturing, education, standards and testing, research and development, procurement and manpower policies.

Current Status

Currently, the vast majority of the manufacturing industry in Malaysia is driven by high-tech multi-national corporations (MNC), which uses Malaysia as a base for cheap manufacturing of components and technology, whose intellectual property belongs to the MNC's country of origin. This generates a legion of low paying manufacturing jobs in Malaysia, and a few highly trained process and manufacturing engineers, and executives. Yes, while this allows a significant inflow of Foreign Direct Investments (FDI), and boosts the percentage of manufacturing exports, it also leaves Malaysia in a precarious position because Malaysia becomes merely a licensed manufacturer, and low paying manufacturing jobs do not always translate into the innovation needed to spearhead the sort of growth needed to increase innovation in Malaysia since the intellectual properties of the manufactured goods do not belong to Malaysian companies. In other words, Malaysia now becomes a center for cheap labour, and is at the whims and fancies of the MNCs which can and will choose to relocate their operations to neighboring countries that can offer lower labour costs, and better tax incentives. And once they do relocate, Malaysia will be left with a legion of low skilled labour that can do little to spearhead Malaysian innovation. Therefore, in order to solve this problem, Malaysia needs to invest in a more complex, and innovation-driven electronics sector in which Malaysian companies are encouraged to research and develop technologies that will be beneficial not only to the country, but also to the world at large. These new technologies have to be of high value, less ubiquitous, innovative and forward-thinking to meet global demands over the coming decades, while being environmentally driven to preserve the ecosystem. But most importantly, the intellectual properties and patents have to belong to Malaysian enterprises. This will also directly ensure that high skilled manufacturing jobs are created. A good example would be Boeing in the United States and Mercedes Benz in Germany, where both corporations research and develop their high technology products, while also providing a sizeable skilled manufacturing line to their home countries.

Secondly, one of the biggest hurdles being faced by Malaysian enterprises is the lack of skilled workforce, and a workforce that is able to innovate. This is largely due to a broken education system that does not spur the curiosity of the average student, but instead rewards abilities to memorise and regurgitate facts in examinations.

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This can be clearly seen by studying the current education structure in schools and universities where the task of achieving maximum grades is put on a higher pedestal than a student's ability to experiment and explore new methods and ideas. Coupled with the lack of international exposure, the Malaysian workforce truly is a workforce that has become a liability to the growth of the nation and the industries seeking to hire these graduates. While Malaysia has produced many great minds, it is not nearly enough for the country's needs, especially the needs of the technologically driven sectors.

Thirdly, due to existing policies, the current climate in Malaysia is very restrictive towards innovators in a sense where not everyone or every company is given an equal platform to excel. Therefore, many of our bright talents, more than 1 million, have chosen to move to greener pastures abroad where they are given opportunities based on the merits of their skills, potentials and qualifications. Singapore alone, once part of Malaysia, now employs about 400,000 of our professionals. In addition, foreign-based Malaysians receive significantly higher wages, enjoy greater professional autonomy and much higher standards of education and living. As a result of that, many of our professionals are reluctant to return to Malaysian shores. This once again puts a handicap towards Malaysia's ability to innovate and progress.

Finally, one of the biggest hurdles faced by the electrical and electronics industry in Malaysia is the lack of government support and leadership when it comes to the development and commercialisation of products developed in Malaysia. This is in a sense where the government often overlooks the procurement of local products in favour of products produced in foreign countries. This is counter-productive to the country, especially in cases where government funds are used to fund the expensive initial and final stages of research and development through various government bodies such as MOSTI and SMECorp. However, very few of those projects initially funded are able to successfully reach beyond the prototype stage, let alone a stage where the product is mature enough to be commercialised. And once the few successful products have reached a stage where they can be successfully commercialised, the government and local industries often overlook them in favour of foreign options, thus denying local innovators a proving ground to develop their technologies, and the ability to further develop and refine homegrown capabilities.

Recommendations

TEEAM sets forth the following recommendations:

The first key recommendation is a sweeping reform of the current education system to produce innovators, not just in the field of science and technology, but also in the fields of arts and humanities. This new system needs to reward those who are curious, and are willing to think out of the box by questioning and improving on existing methods and technologies. These are the qualities that drive innovation. Schools and universities should be made into centers where ideas are freely discussed, and where students are allowed to embark on projects that will help nurture the ability to creatively

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think out of the box, to persevere when faced with failure, and a system which encourages students and educators to be exposed to the methods used by successful developed nations such as Finland, Germany and South Korea where technological research innovation has been at the forefront of their respective economies. In addition to that, students should be encouraged to perform internships and apprenticeships in the industry beginning from a very early age in order to acclimatise them to professional settings, and for them to further explore and refine their interests. This will undoubtedly help local enterprises of various fields in terms of finding and harnessing the required human resources, while also allowing the country to spearhead high technological growth.

In addition to the above, as previously brought up in the 2013 MITI Dialogue, TEEAM once again proposes that it be allowed to create specialized accreditation programs, or an Accredited Training Provider (ATP) to produce a capable workforce for the various electrical and electronic sub-sectors such as:

- Electrical & Electronic installations in buildings & facilities;
- Electrical power as in generation, transmission & distribution and utilisation/consumption; and also co-generation (DCS/CHP);
- Lighting & Illumination;
- Mechatronics & robotics;
- Control & instrumentation;
- Measurements & testing;
- Energy management & green power; and
- Post-meter smart grid platform/installations.

In this case, Suruhanjaya Tenaga (ST) can be designated for the training/testing and certification of wiremen, chargemen and supervisors. Jabatan Pembangunan Kemahiran (JPK) along with ST, can authorise TEEAM to upscale skilled workers/supervisors, those not certified with ST, to be eventually certified by the RPA (Recognition of Prior Achievement) approach to be wiremen, chargemen or even supervisors. Finally, the Board of Engineers of Malaysia (BEM) can be used for grading specialised professional skills in the abovementioned sub-sectors among engineers and other engineering service professionals (ESPs).

The above suggestion is designed to help negate the effects of our substandard education system. This will help local and MNC's operating within Malaysia to find the right talents that they need to conduct their business and research within Malaysia. The availability of an accredited, skilled workforce will only strengthen Malaysia's argument for it to be a viable source of foreign investment as well as a good talent source for local research and manufacturing activities well into the future, which will be beneficial to our country as a whole.

Secondly, the government has to provide an even greater range of support to local enterprises by considering government procurement of local products, or at the very least allow some percentage in their procurement policies to allow local enterprises to develop their capabilities. Currently, Treasury Circular "Surat Pekeliling Perbendaharaan Bil. 7 Tahun 2002" or SPP7/2002 has been written by the government to ensure procurement of local products by government agencies. However, enforcement of this circular has been lax and in some cases disregarded, much to the detriment of local enterprises. A specific case can be shown in the procurement of on-street parking meters. Currently, Malaysia has its own local parking meter manufacturer, which is among the global pioneers in the usage of smart card "Touch & Go" technology for the convenience of users. However, a recent tender by a major local town council has specified the use of foreign made parking meters with inferior specifications. This is a blatant disregard to the said circular, and not one that is easily hidden from the relevant authorities. What is the logic and incentive to using foreign products ahead of our homegrown capabilities? Do we not channel more money and capabilities out of the country? Therefore, TEEAM recommends that the government revisit this circular, and enforce strictly the need to procure local products where available. If tougher laws need to be made, then this would be even better.

If the government isn't the end user, then policy should be written where MNCs are given tax and financial incentives to procure local products. Such an example can be seen in the development of a local homegrown alarm annunciator for use in control relay panels in electricity transmission and distribution stations. The end user is TNB, switchgear manufacturers and local waterworks authorities. While the company has successfully developed an annunciator that is capable of competing, and has proven superior to those offered by foreign competitors, the company is finding it difficult to capture a reasonable share of the market because lower grade annunciators are brought into Malaysia tax exempted. Initially, foreign annunciators were given an import tax exemption because there were no local manufacturers, and they were deemed to be of importance to the public sector. However, now that Malaysia has a capable manufacturer, why are foreign alarm annunciator manufacturers still able to import their wares into Malaysia free of tax? While the local manufacturer has to pay all sorts of import taxes when sourcing for components, the foreign manufacturer does not. This leaves a playing field that is financially biased against local manufacturers in specific and Malaysian innovation in general. And this is often an issue that is faced by many Malaysian innovators. While developed countries seem to protect their local capabilities, Malaysia does not. Is this how we move forward as a country?

In addition, greater bureaucratic and financial assistance should be handed to qualified companies to export their goods to foreign countries. Specialised trade missions can be set up by actively inviting foreign governments to explore the range of goods being offered by Malaysian companies. And should a foreign government choose to procure local products, suitable tax or financial incentives should be provided to the Malaysian corporations to successfully export their products to foreign lands. This not only allows our companies greater international exposure, but also gives these companies the thrust they need to be globally competitive, which in turn will benefit the country.

Thirdly, TEEAM also suggests a shift in government policy regarding the development of a Malaysian Standards (MS) relevant to the Malaysian market, as opposed to adopting existing global standards. The reason that TEEAM suggests this point is due to a number of reasons, such as the differing Malaysian climate in terms of heat and humidity, and to meet the requirements by local authorities such as TNB and JKR.

The current method of conforming and accepting existing global standards is not viable in a sense that after a manufacturer has tested their products to global standards, they will once again have to retest them to meet the supplemental requirements of local authorities and end users. This presents an additional expense to local manufacturers as testing is expensive and time consuming. Secondly, existing international standards do not necessarily adequately address climatic issues in Malaysia such as its heat and humidity, thus often leading to costly early equipment failure. To synchronise and add further depth of expertise and experience to this effort, TEEAM also suggests that the major electronic players, boards, users and authorities be a part in the creation of these new standards to ensure that every ground is covered in terms of requirements. The additional benefit to Malaysia is that its local enterprises will gain heavily from the knowledge and learning curve associated in creating a new standard.

With regards to SIRIM, TEEAM proposes the creation of a new, independent authority to run an electro-technical laboratory to perform testing and certification of electrical and electronic products made in Malaysia as well as to perform conformity assessment on products imported into Malaysia. This is in view of the global lack of acceptance of SIRIM's test report and certification as it does not

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possess the competency to test due to its lack of specialisation and experience. This poses a problem for local manufacturers who want to export their products to international markets, or require specialised requirements as they will now have to seek additional testing and certification from a globally recognised testing house situated in a foreign country, which will pose an additional expense and time delay, and not to mention outflow of currency and skills. In terms of conformity assessment of imported products SIRIM is not able to perform testing on all 31 mandatory electrical product groups, which is required to pass Mandatory Malaysian Standards. This poses an additional risk to local consumers as our market is now dumped with products that are not properly conformed, thus posing safety hazard.

Therefore, TEEAM proposes that the implementation of this new testing authority along with its new laboratories and testing scope be discussed, managed and operated jointly by regulatory authorities, TEEAM, and government users such as Petronas, JKR, TNB, SESCO and local authorities with the common objective of ensuring that local products are meeting desired standards. Since the majority of our local manufacturers are SME (Small Medium Enterprise), they cannot afford to have their own in-house facilities, which is why this new electro-technical laboratory will have to be funded by the government. The availability of such a globally competent laboratory will be a great marketing tool to demonstrate to the rest of the world that Malaysia is well and truly capable of producing world class goods, and this will increase international trust in locally produced products. The plus side would be increased learning to our workforce from the establishment of such a laboratory, and a potential source of income for the government from foreign companies looking to have testing and certification done in this new laboratory. The laboratory is expected to cost about RM500 million to build, and another RM100 million per year for five years before it gets into a stage where it can be self-financing.

Where possible, foreign research houses should be actively invited to tie up with Malaysian companies to perform research based activities. Perhaps this can be made into an avenue in which government grants recipients are able to tap into global know-how in order to successfully convert government grants and loans into commercial activity that brings significant returns on investment for the nation, rather than the grants turning into a fruitless waste of public funds. This is where government leadership and foresight is key.

Looking ahead to our neighbours such as Singapore, Japan and South Korea, these nations enjoy a higher per-capita income compared to Malaysia because they engage in high value manufacture and innovation, and not just the simple manufacture-under-license and export of high technology goods. This is the direction that Malaysia needs to look at and fund - an environment that produces less ubiquitous, high value added goods. Only then will Malaysia be able to achieve its target of being a high income nation, and a nation that will be a regional and global leader in the high technology sector. In addition to that, as with our developed neighbours, a system of meritocracy needs to be inculcated in which the right people are given the appropriate tasks.

However, with respect to the above funding and creation of higher value added sectors, TEEAM also feels that it is equally important to strengthen the current manufacturing capabilities in Malaysia. This is due to the fact that new innovation is difficult, and the fruits of its labour take time to mature, and subsequently reap. Therefore, in order to create a long term, well rounded economy, the current manufacturing capabilities has to be bolstered while investing in future capabilities.

Conclusion

In conclusion, TEEAM recommends the following:

- A sweeping reform of the education system;
- The creation of new accredited programmes by TEEAM with the help of local works and engineering boards to retrain, and accredit workforce required for the multitude of electrical and electronics sub sectors;
- Stricter enforcement in the need to procure local products where possible;
- Ending of tax-exempt status to foreign manufacturers of important public goods if local manufacturers exist;
- Greater financial and bureaucratic aid to local enterprises seeking to export;
- Increased government engagement with foreign counterparts to promote Malaysian capability;
- Development of Standards that support TBT principles among GLC's – to avoid retesting just to satisfy GLC's procurement spec with preferred minor deviations from International Standards;
- Creation of a new, globally accepted, testing and certification body and laboratory for the electrical and electronics industry;
- Creation of new research houses in Malaysia, in collaboration with foreign counterparts;
- Better systems to help grant recipients to successfully implement their projects; and
- Funding of new higher, value added innovation and manufacturing industries, while strengthening current manufacturing capabilities.

TEEAM is ever ready to support government initiatives to uphold and strengthen the integrity of the electrical and electronics industry in Malaysia. TEEAM is also committed to ensuring that the electrical and electronics sector not only contributes a higher percentage to the nation's GDP, but also in the increase of more high value added technology. But it cannot do this alone. It needs the assistance and input of the Malaysian government to successfully realise these goals.

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14th Malaysia-Taiwan Joint Economic Conference

The 14th Malaysia – Taiwan Economic Conference was held on 9th December 2013 at Menara MATRADE, Kuala Lumpur. The conference was jointly organised by the National Chamber of Commerce and Industry of Malaysia (NCCIM) and the Chinese International Economic Cooperation Association (CIECA) of Taiwan.

The Conference aimed to provide a platform for CEO and decision makers of Malaysian and Taiwanese businesses to discuss and explore potential business and investment opportunities, and problems encountered when investing or doing business in Malaysia and Taiwan.

During the opening session, a ceremony of memorandums signing between Malaysia and Taiwan was held. A Memorandum of Agreement between NCCIM & CIECA and Memorandum of Cooperation between TEEAM & TEEMA (Taiwan Electrical and Electronic Manufacturers' Association) were signed to establish and develop trade and technical cooperation between Malaysia and Taiwan.

After the opening, distinguished speakers from Malaysia and Taiwan spoke on the following topics:

- Information and Communications Technology
- Electrical Electronics Industry
- Halal Food
- Cosmetics Industry

Following this, discussion were held on business collaborations, economic landscape and challenges. B2B Business Meetings were held in the afternoon. It was a good platform for members of the participating associations to expand business contacts and look for business opportunities in Malaysia and Taiwan.

During conference *– A cross-section of the participants.*

Souvenir exchanged *– (from left) Mr Jimmy Ou (TEEMA Vice President), Mr Suresh Kumar Gorasia (TEEAM International Affairs Chairman & Past President) and Mr K Subramaniam (TEEAM Vice President).*

Opening ceremony *– Datuk Ir Hj Hamim Samuri, Deputy Minister of International Trade and Industry of Malaysia delivering his opening speech.*

Memorandum signing among the participating associations

NCCIM & CIECA

TEEAM & TEEMA

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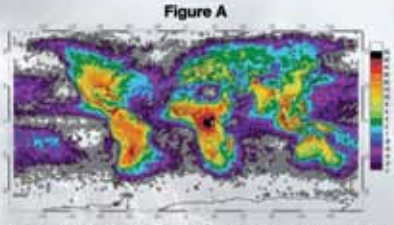
Southeast Asia Tropical Climate

The climate in Southeast Asia is mainly tropical-hot and humid all year round with plentiful rainfall. Incidents caused by lightning strikes is always being heard as this piece of lands is oppose to 80-140 thunderstorm days per year (Refer to Figure A); which approximate equivalent to average 10-50 strikes per kilometre square per year. Therefore, it would be a need for us to install a proper lightning protection system because lightning strikes all exposed things on the ground, such as buildings, storage tanks, trees, hilltops or even human beings.

Figure A



Lightning is a transient discharge of static electricity that serves to re-establish electrostatic

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Badminton Tournament 2013

Thirty-nine pairs of men's doubles, twenty-three of men's single and nine pairs of mixed doubles participated in the TEEAM Badminton Tournament 2013. The tournament was held over two Sundays on 20th & 27th October 2013 at Sports Forum 19, Petaling Jaya, Selangor. Every player participated enthusiastically with very strong fighting spirit. The TEEAM Sports Committee was very delighted as the tournament drew a good turnout. A big thank you to the referees, empires and linesmen who ensured a smooth tournament. The list of winners and sponsors appear on page 103.

Men's singles champion *– (left) Mr Mohd Suzaime (Indkom Engineering) received trophy and AEON cash voucher from Ir Chew Shee Fuee KMN (TEEAM President).*

For the album *– Participants from Success Electronics.*

Who will be the champion? *– Participants checking on the tournament results.*

Men's doubles event *– Energetic players in action.*

For the album *– A group photo taken before the game.*

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..... Continue Badminton Tournament 2013

Men's singles 1st runner-up *– (left) Mr Gallen Loh (Omron Electronics) received trophy and AEON cash voucher from Ir Chew Shee Fuee KMN (TEEAM President).*

Men's doubles champion *– (2nd from left) Mr Chang Chong Seong (Power Solution Trading) and (extreme right) Mr Wong Chee Way (Individual Member) received trophies and AEON Cash Vouchers from (2nd from right) Ir Chew Shee Fuee KMN (TEEAM President). With them is (extreme left) Mr Liang Kok Boon (TEEAM Sports Chairman).*

Champion & 1st runner-up, Men's Singles *– (2nd from left) Mr Gallen Loh (Omron Electronics) versus (2nd from right) Mr Mohd Suzaime (Indkom Engineering). Umpire is Mr Jack Soon (centre). With them are (extreme right) Mr Liang Kok Boon (TEEAM Sports Chairman) and (extreme left) Mr Yap Wee Tong (TEEAM Sports Committee Member)*

Mixed doubles champion *– (extreme left) Ms Jenny Wong Pei Rong (OSRAM (Malaysia)) and (2nd from right) Mr Au Kah Keong (Lee Hoe Electrical) received trophies and AEON cash vouchers from (2nd from left) Ir Chew Shee Fuee KMN (TEEAM President). With them is (extreme right) Mr Liang Kok Boon (TEEAM Sports Chairman).*

3rd & 4th placing, Men's Singles *– (extreme left) Mr Tan Kim Hoong (Genuine Electric) versus (2nd from right) Mr H'ng Kok Keong (Genuine Electric). Umpire is Mr Steven Quek (2nd from left). With them is (extreme right) Mr Liang Kok Boon (TEEAM Sports Chairman).*

Men's doubles 1st runner-up *– (2nd from left) Mr Wong Choon Onn and (extreme right) Mr Ng Zhi Wen (Success Electronics) received trophies and AEON cash vouchers from (2nd from right) Ir Chew Shee Fuee KMN (TEEAM President). With them is (extreme left) Mr Liang Kok Boon (TEEAM Sports Chairman).*

Congratulations! *– The jubilant winners with TEEAM officials.*

Badminton Tournament 2013 Results

Men's Singles Event

Champion
Mohd Suzaime Salehuddin
Indkom Engineering Sdn Bhd
AEON Cash Vouchers worth RM550 + Trophy

1st Runner-Up
Gallen Loh Yee Hin
Omron Electronics Sdn Bhd
AEON Cash Vouchers worth RM350 + Trophy

2nd Runner-Up
Tan Kim Hoong
Genuine Electric Sdn Bhd
AEON Cash Vouchers worth RM250 + Trophy

3rd Runner-Up
H'ng Kok Keong
Genuine Electric Sdn Bhd +
AEON Cash Vouchers worth RM150 + Trophy

Men's Doubles Event

Champion
Chang Chong Seong & Wong Chee Way
Power Solution Trading Sdn Bhd & Individual Member
AEON Cash Vouchers worth RM700 + Trophies

1st Runner-Up
Wong Choon Onn & Ng Zhi Wen
Success Electronics & Transformer Manufacturer S/B
AEON Cash Vouchers worth RM500 + Trophies

2nd Runner-Up
Lee Kum Leong & Benn Lim
Jalita Engineering Sdn Bhd + Munpong Electrical Distributors Sdn Bhd
AEON Cash Vouchers worth RM400 + Trophies

3rd Runner-Up
Jackson Wong Chee Young & Yap Chun Wah
Schneider Electric Industries (Malaysia) Sdn Bhd
AEON Cash Vouchers worth RM300 + Trophies

Mixed Doubles Event

Champion
Au Kah Keong & Jenny Wong Pei Rong
Lee Hoe Electrical & Trading Sdn Bhd + OSRAM (Malaysia) Sdn Bhd
AEON Cash Vouchers worth RM500 + Trophies

1st Runner-Up
Wong Chin Peng & Teng Swee Fong
Individual Member + See Wide Letrik (Selangor) S/B
AEON Cash Vouchers worth RM300 + Trophies

Quarter Finalists

("fall outs" of quarter finalist received a bath towel as encouragement")

Men's Singles Event

Loke Chan Hon
EITA Resources Berhad

H'ng Kok Keong
Genuine Electric Sdn Bhd

Tan Kim Hoong
Genuine Electric Sdn Bhd

Mohd Suzaime Salehuddin
Indkom Engineering Sdn Bhd

Gallen Loh Yee Hin
Omron Electronics Sdn Bhd

Chong Jin Kang
SKV Electrical Sdn Bhd

Chan Wan Kong
Success Electronics & Transformer Manufacturer Sdn Bhd

Teh Choon Kooi
Success Electronics & Transformer Manufacturer Sdn Bhd

Men's Doubles Event

Chen Siang Long & Au Kah Keong
Bandar Elektrik S/B + Lee Hoe Electrical & Trading S/B

Heng Ngee Sen & Heng Boon Chea
Bestlite Electrical S/B + G & H Electrical Trading S/B

Lee Kum Leong & Benn Lim
Jalita Engineering Sdn Bhd + Munpong Electrical Distributors Sdn Bhd

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New Maluri Letrik (Sel) Sdn Bhd

Chang Chong Seong & Wong Chee Way
Power Solution Trading Sdn Bhd + Individual Member

Jackson Wong Chee Young & Yap Chun Wah
Schneider Electric Industries (Malaysia) Sdn Bhd

Wong Choon Onn & Ng Zhi Wen
Success Electronics & Transformer Manufacturer S/B

Mohd Sofie & Ahmad Khaizarul
Sunway Engineering Sdn Bhd

Upcoming Sports Event

Bowling Tournament 2014

Date : 15th June 2014 (Sunday)
Time : 2.00 pm
Venue : Sunway Pyramid Megalanes

Registration : TEEAM Secretariat
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Circuit Protective Devices - Circuit Breakers and MS IEC 60898

This article is contributed by Mr Dahari Mat Siran, TEEAM Electrical Safety & Quality Chairman.

Circuit Breakers

The circuit breaker is a thermomagnetic device capable of making, carrying and interrupting currents under normal conditions, but especially under those considered abnormal. There are many types available, the most common being the'thermal magnetic circuit breaker'. 'Miniature circuit breakers' or MCBs should comply with MS IEC 60898 entitled "Circuit-breakers for Overcurrent Protection for Household and Similar Installations". The scope identifies they are designed for use by uninstructed people. The maximum rated current permitted is 125A.

Circuit breakers for use by instructed persons are called 'Air Circuit Breakers (ACB)' or 'Moulded Case Circuit Breakers (MCCB)'. These devices should comply with MS IEC 60947-2 entitled 'Low Voltage Switchgear and Controlgear - Part 2: Circuit Breakers'. The scope identifies that this standard applies to circuit breakers with a rated voltage not exceeding 1000V a.c. or 1500V d.c. and places no restriction on rated current. The minimum size available is 16A. Both Malaysian Standards covering low-voltage circuit breakers provide the user with a better assurance of quality and performance by taking into account the actual operating conditions of the breaker. New definitions and symbols have been introduced, some of those most frequently used are:

Ue : rated operational voltage

Icn : rated short circuit breaking capacity

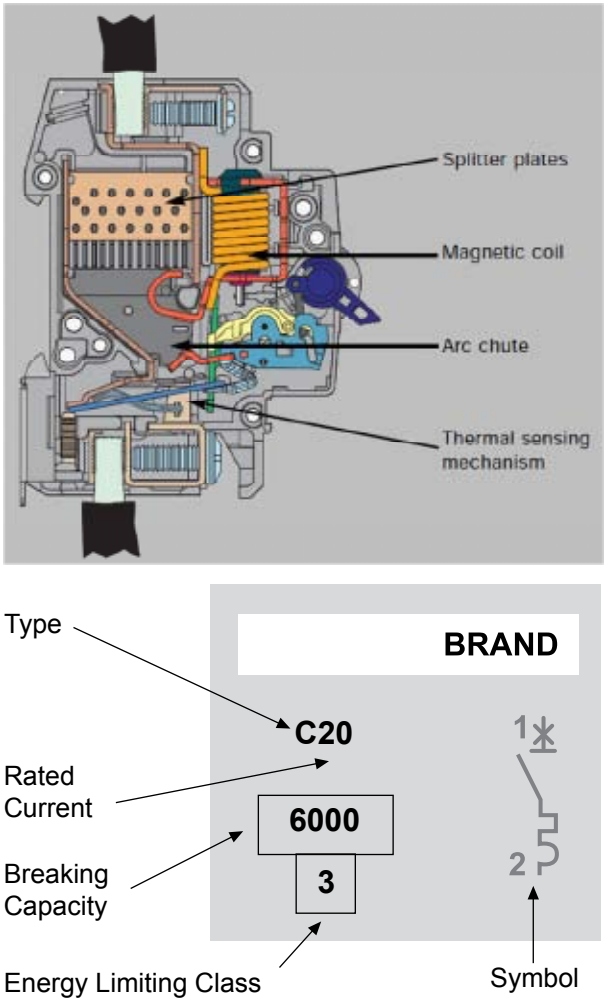
In : rated current = maximum value of current used for the temperature rise test

Circuit Protective Devices – MS IEC 60898 Circuit Breakers

MS IEC 60898 is the most onerous Standard written for the manufacturing and testing of circuit breakers. By definition its title 'Specification for circuit breakers for overcurrent protection for household and similar installations', implies that the circuit breaker will be generally used on final circuits. The scope of the standard states that the circuit breakers are designed for use by uninstructed people and are not designed to be maintained. This is further emphasized by the many tests required to ensure the safety of the person who will return the circuit breaker to service. It does not mean that this Standard only refers to circuit breakers in domestic situations. All buildings have final circuits, and in many instances the first person attempting to reset a circuit breaker could be classed as uninstructed. The Standard recognises this by including the words 'and similar installations' in its title.

The scope of MS IEC 60898 allows the circuit breaker to be manufactured up to 125A, have a rated voltage of 440V and a breaking capacity of up to 25 kA. The inclusion of an energy let-through class rating provides the designer with a better indication of the ability of the device to operate under fault conditions. Information about the device can be found on the label and also in the manufacturer's literature.

Here I would like to discuss the 3 most important parameters in selecting circuit breakers according to MS IEC 60898, the rated current (In), tripping curve (type) and the breaking capacity (Icn).



Rated Current (In)

The rated current In can be defined as the current which a circuit breaker will carry continuously under specified conditions on which the time/current characteristics are based. In MS IEC 60898 this calibration is always carried out at a reference ambient temperature of 30ºC unless otherwise stated. Devices covered by MS IEC 60947-2 are calibrated at 40ºC. The value of In can be fixed by the manufacturer or can be adjusted by the installer.

Preferred values of rated current: 6, 8, 10, 13, 16, 20, 25, 32, 40, 50, 63, 80, 100, 125A.
Note: Adjustable releases are not available on MS IEC 60898 devices.

Thermal Trip

A thermal bi-metallic trip is used to protect against overload currents. The bi-metallic or thermal sensing element, deflects mechanically as current passes through it. The higher the overcurrent, the greater the deflection. At a pre-determined point the element will actuate a tripping mechanism, open the contacts and disconnect the circuit. This action is represented by the inverse time characteristic (curved section) of the circuit breaker's tripping curve (see curves below).

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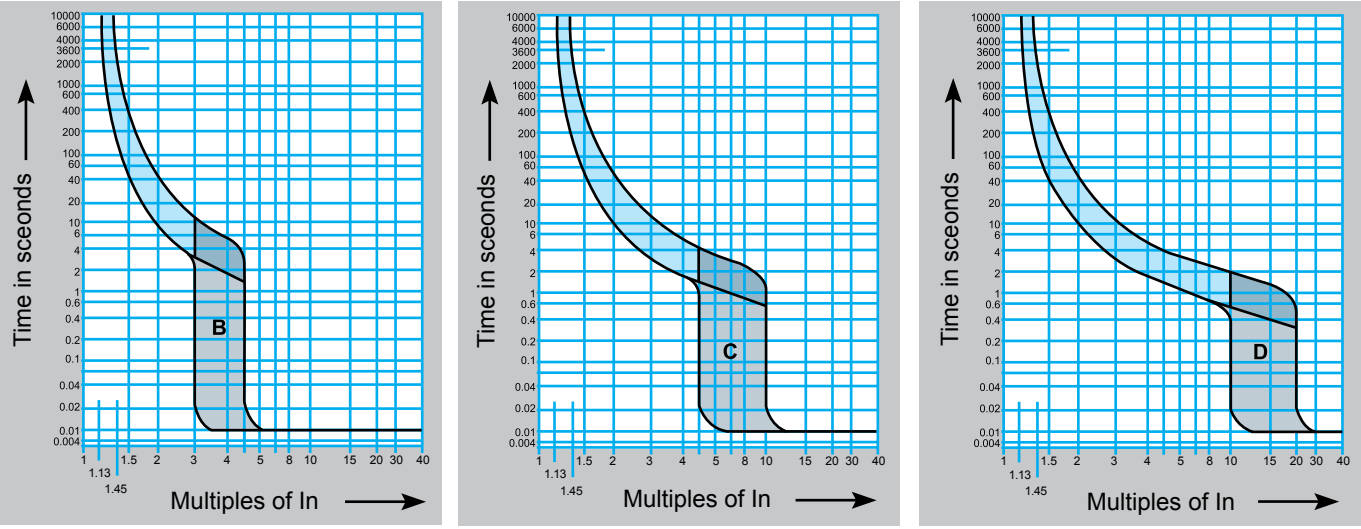
..... Continue Circuit Protective Devices - Circuit Breakers and MS IEC 60898



Magnetic Characteristic

The magnetic characteristics on MS IEC 60898 circuit breakers are fixed. Devices with a common nominal current rating are available in three different types. A letter preceding the nominal current rating i.e. B20 for a 20A type B circuit breaker denotes the type of device. The letters B, C, or D relate to the magnetic trip setting or characteristic curve. This component of the circuit breaker is constructed using a coil or solenoid, which is designed to operate the tripping mechanism when the overcurrent reaches a set magnitude. This magnetic component is specifically designed to deal with fault current.

Type Magnetic Application trip setting

B	**3 – 5 In**	General Domestic Use, resistive loads
C	**5 – 10 In**	Motors, Fluorescent Lighting, inductive loads
D	**10 – 20 In**	Transformers, Sodium Lighting, Highly Inductive Loads

As can be seen from the above graphs, the letter B, C, or D represents a multiple of In. When the current rises to this multiple value, the magnetic trip operates instantaneously to open the contacts. The setting and calibration of the magnetic trip is carried out by testing a circuit breaker from cold. When a current equal to the lower multiple is passed through the breaker it must not operate within 0.1 seconds. When a current equal to the higher multiple is passed it must operate within 0.1 seconds. At rated short circuit current the speed of operation is typically between 3 and 5 milliseconds.The opening speed of the contact, linked with fast arc-quenching technology, provides excellent protection for cables and equipment against the thermal effects and the electro-dynamic forces created by high fault currents.

Breaking Capacity

Breaking capacity is the magnitude of fault current that the device is able to disconnect safely. The rating for the device is obtained by carrying out a series of tests. The devices are given two separate ratings; a maximum and a service rating. Symbols used to show this are:

Icn- Rated short-circuit breaking capacity (MS IEC 60898)
Icu -Ultimate short-circuit capacity (MS IEC 60947-2)
These symbols correspond to the maximum fault current capable of being handled by a circuit breaker and represents the maximum short-circuit current which the breaker can interrupt and is to be compared with the prospective fault current at the point of installation.

Ics- Service short-circuit breaking capacity
This is the magnitude of fault current at which the device can be safely put back into service and represents the maximum level of fault current operation after which further service is resumed without loss of performance. In all short circuit tests, the breaker undergoes a series of make and break operations. Standard values of rated breaking capacity: 1500, 3000, 4500, 6000, 10000, 20000 and 2500A.

Mr Dahari Mat Siran is the Marketing Manager of Hager Engineering (M) Sdn Bhd. He can be contacted at dahari.siran@hager.my

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Challenges and Opportunities in Electrical Industry - Part 21

This paper is prepared by Ir Chew Shee Fuee KMN, TEEAM President.

Signing of Form G

TEEAM has been informed that some Suruhanjaya Tenaga (ST) offices insisted that Form G: Supervision and Completion Certificate for electrical installations higher than low voltage must be signed by a Competent Electrical Engineer.

According to the requirement, the person who signs the Form G certifies that he/she has supervised and completed the works of electrical installation according to the Electricity Regulations.

Electrical contractors generally do not have competent electrical engineers in their employ. Therefore they will persuade their testing engineers to sign Form G. Testing engineers are only responsible for testing and competent to sign Form H: Test Certificate. If they sign Form G they cannot certify supervision and completion of the installation.

Currently Form G is signed by Wiremen with the relevant competency.

Regulation 13 stipulates the following

Test of Installation

13 (1) Upon completion of wiring or rewiring of an installation or extension to an existing installation in subregulation 12(l), the installation shall be tested by a Wireman with Single Phase Restriction or a Wireman with Three Phase Restriction authorized to test any installation, and who shall certify a Test Certificate for the installation.

(2) Upon completion of wiring or rewiring of an installation or extension to an existing installation as in subregulation 12(2), the installation shall be tested by a Wireman with Three Phase Restriction authorized to test any installation, and who shall certify a Test Certificate for the installation.

(3) Upon completion of an installation or extension to an existing installation operating at higher than low voltage, the installation shall be tested by an Electrical Services Engineer, employed on a full-time basis by an Electrical Services Contractor and who shall certify a Test Certificate for the installation.

Our understanding is that Form G and H shall be signed by Wiremen with relevant competency. For installation higher than low voltage, Form H shall be signed by an Electrical Services Engineer.

The Electricity (Amendment) Regulations 2014

The document can be downloaded from http://www.st.gov.my/images/K2/highlights/announcement_notice/P.U.A73-PERA-TURAN-PERATURAN_ELEKTRIK_PINDAAN_2014.pdf

The Amendment primarily stipulates the new fee structure.

New Fees for Registration as Competent Person

Competency	Fees
Electrical Service Engineer	RM300
Electrical Competent Engineer	RM200
Electrical Supervisor	RM150
Chargemen (1KV-33KV)	RM110
Chargemen (up to 1KV)	RM60
Wiremen (1 Phase)	RM30
Wiremen (3 Phase)	RM40
Cable Jointer	RM40

New Fees for Certificates of Registration as An Electrical Services Contractor

Voltage Level	Issuance Fees	Renewal Fees
Below 11KV	RM1000	RM500
11KV-33KV	RM1100	RM550
Above 33KV	RM2200	RM1100

New Fees for Certificates of Registration as An Electrical Contractor

Class	Issuance Fees	Renewal Fees
A	RM3000	RM2000
B	RM1500	RM1000
C	RM500	RM300
D	RM200	RM100

New Fees for Certificates of Registration as A Switchboard Manufacturer

Voltage Level	Issuance Fees	Renewal Fees
Low Voltage	RM660	RM330
Higher than Low Voltage	RM3300	RM2200

New Fees for Certificates of Approval to Manufacture, Import, Display, Sell or Advertise Equipment

Voltage Level	Issuance Fees	Renewal Fees
240V	RM220	RM110
415V	RM330	RM220

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

Ir Chew is the current President of The Electrical and Electronics Association of Malaysia (TEEAM). He was TEEAM President for 2001 - 2003 and 2003 - 2005. He is the Past President of the Asean Federation of Electrical Engineering Contractors (AFEEC).

Ir Chew is the Managing Director of G H Liew Engineering (1990) Sdn Bhd and QATM Engineering Services Sdn Bhd. 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 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 experience in electrical control and relay protection. He is also specialised in electrical site tests on power equipment, electrical fault investigation, service and maintenance of electrical switchgear and relays. His work also includes electrical supervision of substations and electrical audit. He presents lectures on electrical apparatus and the protection system. He is at present a WG representative in the development of Green Technology Road Map Phase 1. He is also a member of the National Energy Efficiency Technical Working Group. He is the Immediate Past President of IET Malaysia (Institution of Engineering & Technology) and Board Member of IET's APRB (Asian Pacific Region Board). He can be reached at E-mail: sfchew@ghliew1990.com.

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We in TEEAM care for our members' interests! One of the benefits for our members is that the TEEAM Secretariat had obtained discounts on room rates from hotels listed below. Whether you are on a business trip, family holiday or organising seminar, TEEAM will always be happy to assist you. Call us for details on the discounts available.

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Bayview Hotel Langkawi	04-966 1818
Federal Villa Beach Resort Langkawi	03-21622922
Holiday Villa Beach Resort & Spa Langkawi	03-21622922
Holiday Villa City Centre Alor Setar	04-734 9999
Kelantan	
Hotel Perdana Kota Bharu	09-745 8888
New Pacific Hotel, Kota Bharu	09-745 6555
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Corus Hotel Kuala Lumpur	03-21618888
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Grand Season Hotel	03-26978888
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Novotel Hotel Kuala Lumpur	03-21470888
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Pahang	
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Suria Hill Country House, Janda Baik Pahang	03-78064752
Holiday Villa Beach Resort & Spa Cherating Perak	03-20612922
Perak	
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Syuen Hotel, Ipoh	05-253 8889
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Sunway Hotel Seberang Jaya	04-371 1202
The Gurney Resort Hotel & Residences Penang	04-370 7000
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Felda Residence Kuala Terengganu	09-632 1111
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The Year of the Wood Horse

4th February 2014 to 3rd February 2015

This article is extracted from 'Coverage' Magazine published by The China Press in January 2014

The Horse is the seventh sign of the Chinese Zodiac, which is made up of 12 Animal Signs that rule the world by rotation.

It is pertinent to note that the Zodiac year does not begin with the 1st day of the Chinese New Year (31st January 2014), but falls on the day of the 'Start of Spring', which is 4th February 2014, in accordance with the computation on solar movements. As such, any one born on 31st January 2014 till 2nd February is still a Snake, not a Horse.

As in many parts of the world, the horse had played an important part in Chinese civilization. The contribution of the animal was associated with almost every aspect in the early history of China, ranging from transport to military, as well as culture to commerce and industry. The extensive use of the Chinese word 'Horse' (ma) in the Chinese language and literature is testimonial to its vital importance to the early Chinese.

Horse *– The seventh sign of the Chinese Zodiac.*

Horse on the run

It is interesting to note that there was once no horse in China. According to archeological studies, horses began to evolve on the American continent more than 60 million years ago, but they somehow died out or migrated to other continents (note: Alaska was connected to Russia then) where they thrived well, and were later reintroduced back to America by Spanish settlers.

Throughout the world, there is no other animal closer to mankind, except maybe for dogs. It is not an understatement to say that the horse is one of God's greatest gifts to mankind. Without them, the world and political divides will not be what they are today. In the early days before the advent of automotive vehicles, the population of trained horses of a country has a direct bearing on its economic and military strength. Without the aid of horses, for instance, it would be impossible for the Mongolian army to reach Middle East or Europe, nor for the Manchurians to conquer the whole of China.

Symbol of nobility & mobility

In Chinese culture, the Horse is a symbol of nobility, speed and perseverance. People born in the Year of the Horse are supposed to be smart, fabulous characters who have a gift for getting through to other people. Like horses in the wild, their aim in life is 'to seek individual freedom and happiness'.

As a matter of fact, most of the Chinese sayings and proverbs associated with horses tend to be dynamic, positive and optimistic, as can be seen from popular festive greetings such as 'long ma jing shen' (as energetic as the dragon and horse), 'ma dao gong cheng' (success assured by the arrival of the horse), 'lao ma shi tu' (an old horse can always find its way back), 'yi ma dang xian' (led by the horse), etc.

One of the most popular Chinese horse folklores talks about a farm boy who had lost a good horse. When his grandfather learned about it, he consoled the boy, 'it's okay, who knows what will happen next.' A few days later, the lost horse returned and brought with it another even better horse. In a way, it was a blessing in disguise. The boy was overjoyed, but the grandfather cautioned him, 'please do not be too happy.' Sure enough, the farm boy fell and broke his leg a few days later when he was trying to ride on the new horse. The moral of the story is, there is only a fine line between fortune and misfortune, and it is unwise to over react on either one. Quite philosophical, isn't it?

Malaysian Horses

Even though rather alien, the horses have also somehow found themselves rooted in parts of the Malaysian society. For example, other than the race courses and equine parks, horses were once common in interior Sabah for the use of inland travel and transportation. The famous traditional Malay horse dance 'Kuda Kepang' is another case in point.

Interestingly, there are several Malaysian terms that are also related to horse (pronounced as 'Ma' in Mandarin or Cantonese). Malaysia, for example, is translated as 'Ma Lai Xi Ya'. Da Ma Cai is of course one of our popular lottery ticket company. Meanwhile, Dr Mahathir, who happens to love horses, is often dubbed as 'Lao Ma' (Old Horse) by the Chinese media.

General Forecast

According to the renowned Master Seetho Fa Zheng who was invited by China Press to Malaysia to give a talk on 2014 Fortune Analyses, Malaysia is expected to gain from the mutual complement of the fire and water elements in the coming year, which will be reflected in a more stable political and economic condition resulting in the continual healthy inflow of foreign investments.

Meanwhile, Master Su Ming Feng who was invited by Nanyang Siang Pau to give a talk on the same subject during the 15th World of Chinese Book Fair, cautioned that 2014 is a 'Traffic Accident Year', especially in the 4th and 10th lunar months, and that the Snake, Monkey, Boar and Tiger people should be extra careful on the road.

CIPAA 2012 Comes Into Operation

The Construction Industry Payment and Adjudication Act (CIPAA) 2012 comes into operation effective 15th April 2014. The Act was passed on 18th June 2012 and gazetted on 22nd June 2012 to:

- Facilitate regular and timely payment;
- Provide a mechanism for speedy dispute resolution through adjudication;
- Provide remedies for the recovery of payment in the construction industry; and
- Provide for connected and incidental matters.

The Ministry of Works had proposed the Construction Industry Payment and Adjudication (Exemption) Order 2014 and the amended Construction Industry Payment and Adjudication Regulations 2014. Both had been approved by the Minister of Works, YB Datuk Haji Fadilah Yusof and is operative on 15th April 2014.

The implementation of CIPAA 2012 is indeed good news for the construction industry that have been plagued with payment dispute problems for far too long. The Kuala Lumpur Regional Centre for Arbitration (KLRCA) has been named the adjudication authority by virtue of Part V of CIPAA 2012, giving the centre a key role in being the default appointing, administrative and training authority for statutory adjudication. The KLRCA had recommended that CIPAA 2012 be prospective in nature so as to apply to all construction contracts made after the operative date. The Construction Industry Payment and Adjudication (Exemption) Order 2014 seeks to exempt two categories of government construction contracts. The first category of government construction contracts are contained in the first schedule of the exemption order namely a contract for any construction works that involve emergency, unforeseen circumstances and that relate to national security or security related facilities.

The second category of government construction contracts are contained in the second schedule of the exemption order namely construction contracts with the government of the contract sum of twenty million ringgit (RM20,000,000) and below. With regards to this second category, the exemption order merely exempts these contracts from the application of subsections 6(3), 7(2), 10(1), 10 (2), 11(1) and 11(2) of CIPAA 2012, and relates to the timeline for submissions and replaced with a set of longer timelines for such submissions. It is also a temporary exemption from 15th April 2014 to 31st December 2015 for this second category. However, the exemption order does not extend to construction contracts to which the government is not a party.

The CIPAA 2012 and the accompanying Regulations and Exemption Order can be viewed on the website of the Federal Government Gazette at www.federalgazette.agc.gov.my

..... *Continue The Year of the Wood Horse*

In Your Element

Like anything under the sun, traditional Chinese Astrology also involves the Five Elements (metal, water, wood, fire and earth). Before predicting your fortune concerning your money, career, marriage or health in 2014, you have to know what type of Element you are from your Birth Chart which can be computed from your birthday and birth-hour.

2014 is the Year of the Green Wood Horse, which contains Fire and Earth. If your Lucky Element is Wood, Fire or Earth, then 2014 will bring you some degree of fortune. The strongest element of 2014 is Fire. Therefore, People whose predominant element is Fire will get the most benefits in 2014.

The Metal Horse (1930 & 1990*)

The Metal Horse loves to roam. He is self-sufficient and treasures his freedom and liberation. Any type of committed situation is sure to send this Horse running for the hills, so a stable relationship is certainly not his priority.

Horses change jobs and partners frequently because of their need for adventure and their desire to tap into the unknown. This vigor and untamed spirit draws people to the Horse. The Metal Horse will make a better friend than partner because a friendship doesn't tie him down the way a relationship does.

The Water Horse (1942 & 2002*)

Water Horses are quite adaptable. They make the best out of their situations, yet are the most indecisive of the elemental horses. Like the element that characterizes it, the Water Horse moves in many different directions, depending on the flow of the situation and can therefore change his mind several times a day. This can cause confusion with colleagues and partners alike, but most people chalk it up to the Horse's adaptable nature and his ability to go with the flow of things.

However frustrating it can be, the Water Horse will always cheer you up and be able to get a smile back on your face before you even knew he had upset you.

The Wood Horse (1954 & 2014*)

Wood gives this Horse stability and strength. These Horses don't have such a hard time making decisions that other Horses do. Their ability to stick to their guns makes them a bit more predictable than other Horses. They are better equipped to maintain a disciplined approach to their lives and the lives of those they are associated with.

The Wood Horses have no problem working with other people and to a point, they will stick to their scheduled tasks more readily than others. Because of their ability to easily adapt and work with other people they are successful in their professional and personal lives.

The Fire Horse (1906 & 1966*)

The Fire Horse is animated and sociable. He has a wild side that leads him to a life on the edge. Fire Horses are generally either incredibly lucky or ridiculously unlucky. They love the excitement of action and the change it brings.

The Fire element makes them passionate about their feelings and they always take a stand in a situation. Fire Horses are never on the fence about anything and have definitive opinions about the world. Their tempers can be overbearing.

The Earth Horse (1918 & 1978*)

Earth Horses are able to see situations from all angles and corners. They are relatively easy going, preferring to determine each pro and con before making a final decision.

Earth Horses work hard to accomplish goals they have set and would rather take longer to do an outstanding job than to work shorter and shave a little quality. They have great senses of humour and are extremely adaptable in most instances.

*(*Note: The year here refers to the Chinese zodiac year.)*

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New Members

The following new members have been approved and accepted by the TEEAM Council (as at 27th March 2014).
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 and find out how our Association can offer our services to you.

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Website: www.alpha-electric.com
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Contact Person: Ms Amanda Tan Cheng Fang
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E-mail: woonsteel@woonsteel.com.my
Website: www.woonsteel.com.my
Contact Person: Mr Liew Woon Foh JP
Business: Engineering foundry and repair electronics parts.

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Puchong 47100, Selangor Darul Ehsan.
Tel: +603-8076 3828 Fax: +603-8079 1882
E-mail: general@electmech.com.my
Contact Person: Mr Teoh Guan Heok
Business: Mechanical & electrical services.

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Mobile: +6012-213 1335
E-mail: cslee07@gmail.com
Business: System Integrator.

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Tel: +86 571 617 12253 Fax: +86 571 617 12251
E-mail: info@fceec.com Website: www.fceec.com
Contact Person: Ms Riku Xu
Business: Manufacturer, engineering and trading in electric equipment.

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Tel: +603-7832 4009 Fax: +603-7831 9534
E-mail: trsb@marsaprotector.com
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Contact Person: En Mohd Syazwan Bin Musthapa
Business: Electrical engineering (lightning surge protector).

Process Engineering Solutions (M) Sdn Bhd
Suite A2-128, Leisure Commerce Square, No. 9, Jalan PJS 8/9,
46150 Petaling Jaya, Selangor Darul Ehsan.
Tel: +603-7873 5007 Fax: +603-7873 1198
E-mail: williamchoo@process-integrator.com
Website: http://www.process-integrator.com
Contact Person: Mr William Choo
Business: Mechanical, automation control & hydraulic system.

Wong Fun Kee Carpentry Sdn Bhd
Plot 20, Jalan Johan 1/3, Estate Perindustrian Pengkalan 2,
Fasa 1, Batu 7, Jalan Pusing, 31550 Pusing, Perak.
Tel: +605-366 9182 Fax: +605-365 1148
E-mail: wci.ikatanchunlim@gmail.com
Contact Person: Mr Wong Chun Lim
Business: Manufacturing of wooden meter board, consumer box & wooden ladder.

Syarikat Pembaiki Letrik Leong Hing
No. 1, Jalan P4/7, Seksyen 4, Bandar Teknologi Kajang,
43500 Semenyih, Selangor Darul Ehsan.
Tel: +603-8723 6068 Fax: +603-8724 6068
E-mail: general@leonghing.com Website: www.leonghing.com
Contact Person: Ir Dr Ng Kok Chiang
Business: Electrical industrial goods trading, repair, rewind and maintenance of electrical motors.

Yiva Electric Sdn Bhd
19, Jalan RP 3, Rawang Perdana Industrial Park,
48000 Rawang, Selangor Darul Ehsan.
Tel: +603-6091 9811 Fax: +603-6091 9812
E-mail: info@yetplus.com Website: www.yetplus.com
Contact Person: Mr Adam So
Business: Lighting distribution/ manufacturer of cables & wire, LED, lighting, lamps & bulbs.

62nd Anniversary Dinner

TEEAM is celebrating its 62nd Anniversary on 27th September 2014. A grand dinner will be held in conjunction with the celebration at The Majestic Hotel, Kuala Lumpur.

Free advertisement in Suara TEEAM, free dinner table, visual display of company's name and logo are offered to sponsors which are categorised as Diamond, Platinum, Gold, Door Gift and Silver Sponsors. We appreciate your support to sign back the following sponsorship pledge form. For more detailed information, please contact the TEEAM Secretariat at Tel: +603-9221 4417, 9221 2091 Fax: +603-9221 8212 E-mail: teeam@teeam.org.my or teeam52@gmail.com

62nd Anniversary Dinner Sponsorship Pledge Form

Major Sponsors

Sponsors' Benefits	**Diamond**	**Platinum**	**Gold**	**Door Gift**	**Silver**
Sponsorship	RM 25,000	RM 18,000	RM 12,000	RM 30,000	RM 6,000
Visual display of company's name and logo	Company's name & logo	Company's name & logo	Company's name & logo	Company's name & logo	Company's name only
Advertisement in Suara TEEAM	Two full pages colour	One full page colour	One full page black & white	-	One full page black & white
One VIP Table	One table for 10 paxs	One table for 10 paxs	One table for 10 paxs	One table for 10 paxs	One table for 10 paxs
Guest of Honour Table	One seat	One seat	-	-	-
Please tick (✓) in the preferred sponsorship category	( )	( )	( )	( )	( )

Memento of different sizes will be presented to major sponsors.

Cheque No. _____ for RM _____ made payable to "**The Electrical and Electronics Association of Malaysia**" is enclosed.

Company Name: _____

Address: _____

_____

Tel: _____

Fax: _____

Contact Person: _____ _____

Company's Stamp & Authorised Signature

Remarks : 1. Please confirm your sponsorship by return fax and send us your remittance to reserve your booking which is on a first come, first served basis.
2. Please mail it to the TEEAM Secretariat at No. 5-B, Jalan Gelugor, Off Jalan Kenanga, 55200 Kuala Lumpur, Malaysia.
3. Dinner entrance ticket and receipt will be sent to you accordingly.

New Books in Our Library

Informative reference materials are available in our Library. The Library is open to members from 9:00 am to 5:45 pm, Monday to Friday.

Title : ACEM Directory 2013
Publisher : Association of Consulting Engineers Malaysia

Title : AKLI Directory
Publisher : The Association of Indonesian Electrical and Mechanical Contractors (AKLI)

Title : Approval of Electrical Equipment
Publisher : Suruhanjaya Tenaga

Title : Berita KLSCCCI, October-December 2013
Publisher : The Chinese Chamber of Commerce & Industry of Kuala Lumpur & Selangor

Title : Berita MFPA, July 2013
Publisher : Malaysian Fire Protection Association

Title : Business in Action @ FMM, November-December 2013
Publisher : Federation of Malaysian Manufacturers

Title : Electricity Supply Industry In Malaysia, Performance and Statistical Information 2011
Publisher : Suruhanjaya Tenaga

Title : Energy Efficiency in Malaysia
Publisher : Association of Water & Energy Research Malaysia

Title : EUMCCI Review, September-November 2013
Publisher : EU-Malaysia Chamber of Commerce & Industry

Title : HKECA Newsletter, January - March 2014 & April - June 2014
Publisher : Hong Kong Electrical Contractors' Association

Title : Horizons - INTERMACH 2013
Publisher : UMB Asia (Thailand) Co. Ltd

Title : Horizon Thailand, Issue 1, October-November 2013
Publisher : Department of International Trade Promotion, Ministry of Commerce, Royal Thai Government

Title : IEEMA Journal, February, March 2014
Publisher : Indian Electrical andElectronics Manufacturers' Association

Title : Intrade Malaysia 2013
Publisher : Malaysia External Trade Development Corporation

Title : Jurutera February, March 2014
Publisher : The Institution of Engineers, Malaysia

Title : Master Builders Journal, Vol. 1 & 2 2013
Publisher : Master Builders Association Malaysia

Title : MGCC Perspectives, January / February, March / April 2014
Publisher : Malaysian - German Chamber of Commerce and Industry

Title : Negocios - Mexico's Electric & Electronic Industries, Manufacturing The Future
Publisher : Embassy of Mexico

Title : PEMUDAH - Laporan Tahunan 2012
Publisher : Pasukan Petugas Khas Pemudahcara Perniagaan (PEMUDAH)

Title : Power-Gen Asia 2013
Publisher : PennWell Corporation

Title : SIRIM Annual Report 2012
Publisher : SIRIM Berhad

Title : SIRIM Link, Vol 1,2013
Publisher : SIRIM Berhad

Title : Suara Perunding, Third Quarter & Fourth Quarter 2013
Publisher : Association of Consulting Engineers Malaysia

Title : Tenaga Link, Vol 1/2013, Vol 2/2013
Publisher : Tenaga Nasional Berhad

Title : The Ingenieur April - June 2014
Publisher : Board of Engineers Malaysia

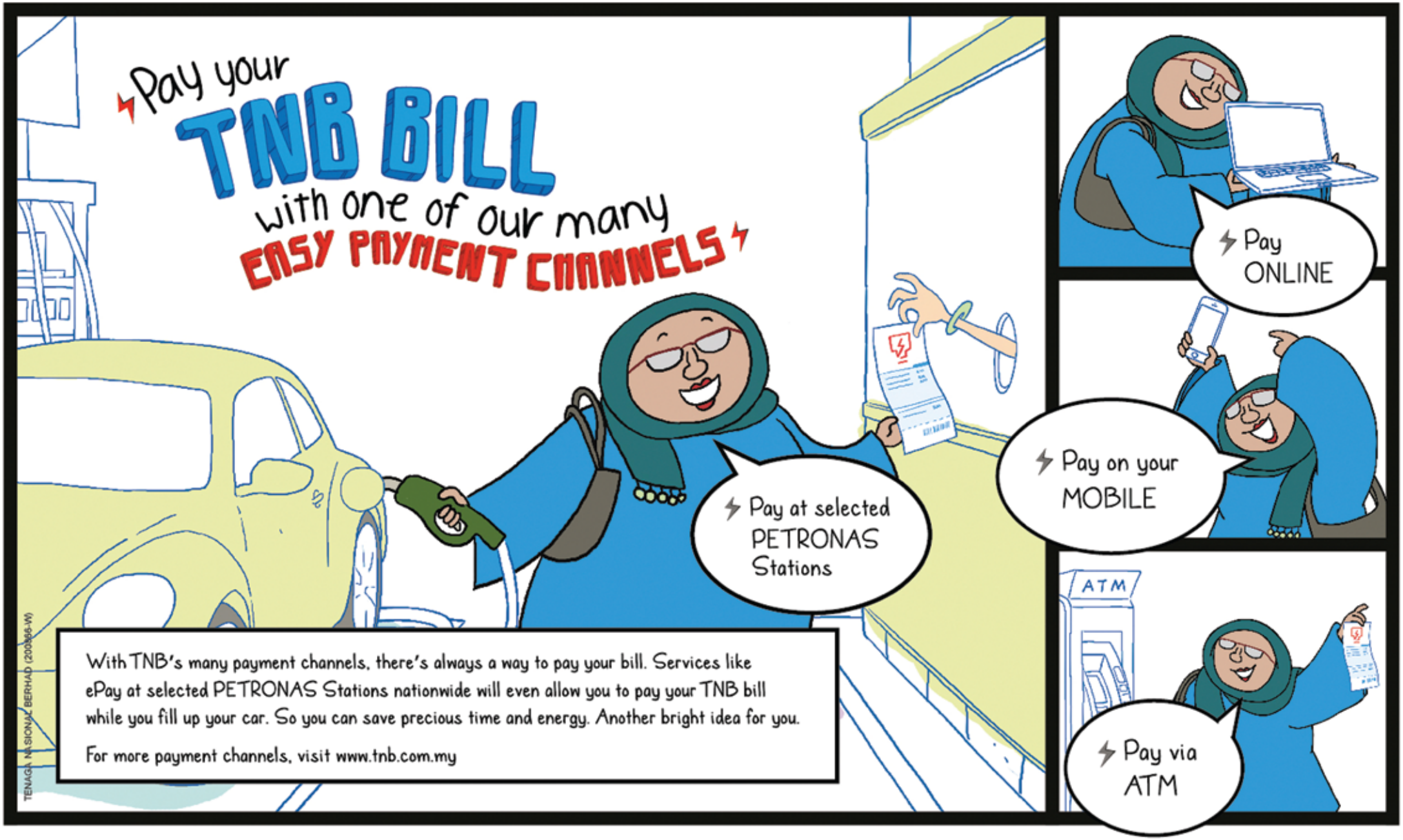
Title : Trademart July-August, September - October 2013
Publisher : Malaysia External Trade Development Corporation

Title : Wiring Design, A Guide to Working Safely with Building Wiring Systems and Designs
Publisher : International Copper Association Southeast Asia

..... *Continue New Members*

BusPower Electric Sdn Bhd
No. 7, Jalan 6/7, Taman Komersial Pandan Indah, 55100 Kuala Lumpur.
Tel: +603-4280 5872 Fax: +603-4280 2873
E-mail: yewjin@buspower.my Website: www.buspower.my
Contact Person: Mr Khong Yew Jin
Business: Electrical trading of busduct, busbar trunking system, cable support system, cables & wires, conduit/PVC pipes, electricity meters, energy saving equipment, LED, lighting, lamps & bulbs, switchboards, switchgears and transformers & accessories.

Tekad LV Sdn Bhd
20, Jalan BS 7/17, Kawasan Perindustrian Bukit Serdang,
43300 Seri Kembangan, Selangor Darul Ehsan.
Tel: +603-8943 5357, 8943 0241
Fax: +603-8945 0522
E-mail: accadmin@powerautomation.com.my
Contact Person: Mr Kok Chee Khung
Business: Switchboard – Electrical.



TNB CareLine
5 Ways to Contact Us

Call or SMS **15454** for power outage or TNB street light malfunction

Call or fax **1300 88 5454** for billing & account enquiries

www.tnb.com.my > One Stop Engagement Centre

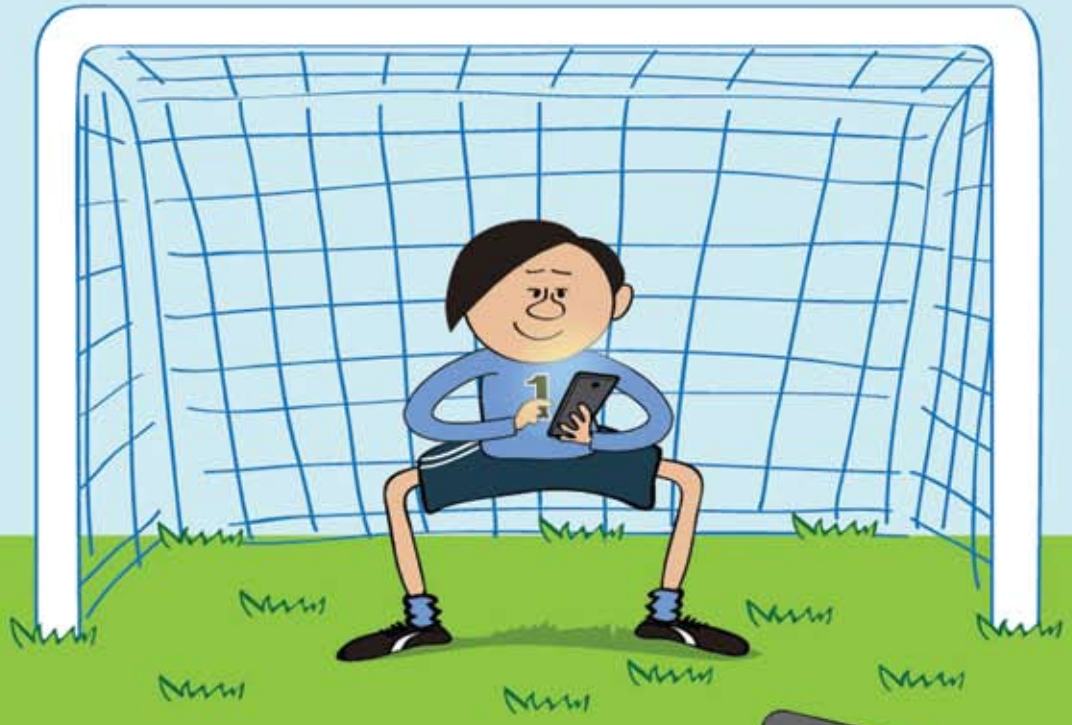
facebook.com/tnbcareline

tnbcareline@tnb.com.my

TENAGA NASIONAL

• Fixed line calls will be charged as local calls • Mobile phone calls are subject to charges by service providers • SMSes are free

Introducing the myTNB app A BRIGHT IDEA in your hands



With the myTNB app, you can keep track of your electricity usage anytime, anywhere. So, you can spend more time on the things you enjoy. Another bright idea for you.

- Check your billing info
- Pay your bills
- Monitor your electricity supply application status
- Find out ways to contact TNB CareLine
- Locate your nearest TNB customer service centre

TENAGA NASIONAL BERHAD (200866-W)

TNB CareLine
5 Ways to Contact Us

Call or SMS 15454 for power outage or TNB street light malfunction

Call or fax 1300 88 5454 for billing & account enquiries
www.tnb.com.my > One Stop Engagement Centre

facebook.com/tnbcareline
tnbcareline@tnb.com.my

TENAGA NASIONAL
Better. Brighter.

• Fixed line calls will be charged as local calls • Mobile phone calls are subject to charges by service providers • SMSes are free

1. READER SERVICE INFORMATION

For FREE Reader Service Information, please circle the page number below:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46		
47	48	49	50	51	52	53	54	55	56	57	58	59	60	62	63	64	65	66	67	68	69	70	
71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	
94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112					
113	114	115	116	117	118	119	120	121	122	123	124	IFC	IBC	OBC									

IFC: Inside Front Cover, IBC: Inside Back Cover, OBC: Outside Back Cover.

Name: _____

Company Name: _____

Address: _____

City & Postal Code: _____

Tel: _____ *Fax:* _____ *E-mail:* _____

Sign Here: _____ *Date:* _____

☐ Distributor, wholesaler, retailer agent
☐ Manufacturer
☐ Technical services
☐ Contractor
☐ Government, association, etc
☐ Other (please specify): _____

Please tick each product that you sell:

☐ Electrical products
☐ Hardware, tools, building products
☐ Home appliances, housewares
☐ Consumer electronics
☐ Industrial equipment

Tick number of employees

☐ 1-99 ☐ 100-499 ☐ 500-999 ☐ over 1,000

64th Issue

1. Use this form for free information.
We will request advertisers to furnish you with prompt information on those Reader Service Numbers you circle.

2. Advertisers are welcomed
Suara TEEAM is a good advertising medium to promote your products and services. Use the advertisement form to book a space .

3. Attention!
General Manager/ Manager/Individual.
Are you a member yet?
If not, find out what you might miss.
Just fill up this slip.

2. ADVERTISEMENT BOOKING FORM FOR "SUARA TEEAM"

	Colour		**Black & White**	
☐	Inside Front Cover	RM 1,600.00	Full Page	RM 500.00
☐	Outside Back Cover	RM 1,600.00	Half Page	RM 300.00
☐	Inside Back Cover	RM 1,400.00	Quarter Page	RM 200.00
☐	Full Page	RM 950.00		

Kindly tick in the relevant box. Please be informed that print-ready digital file is to be supplied by the advertiser. If artwork is needed for black & white and colour advertisement, it will be charged separately.

Enclosed please find crossed cheque/bank draft for RM ..... made in favour of "The Electrical and Electronics Association of Malaysia".

PLEASE TYPE OR PRINT

Name: _____

Company Name: _____

Address: _____

City & Postal Code: _____

Tel: _____ *Fax:* _____ *E-mail:* _____

Sign Here: _____ *Date:* _____

64th Issue

3. MEMBERSHIP APPLICATION

Yes! I am interested to join as a member of The Electrical and Electronics Association of Malaysia.

	Entrance fee	**Annual subscription**
Company member	**RM 400.00**	**RM 300.00**
Individual member	**RM 200.00**	**RM 200.00**
Associate member	**-**	**RM 500.00**
Foreign Associate member	**-**	**USD 200.00**

Please send immediately application form to me .....copies.
Note: Please do not send any money with this slip. Upon receipt of this slip, a membership application form will be sent to you.

PLEASE TYPE OR PRINT

Name: _____

Company Name: _____

Address: _____

City & Postal Code: _____ *Country:* _____

Tel: _____ *Fax:* _____ *E-mail:* _____

Sign Here: _____ *Date:* _____

MAIL TODAY!

to the following address:

The Chairman, Publication Sub-Committee:
The Electrical and Electronics Association of Malaysia
No. 5-B, Jalan Gelugor,
Off Jalan Kenanga,
55200 Kuala Lumpur, Malaysia.

Advertisers Index

Remarks : IFC-Inside Front Cover, IBC-Inside Back Cover, OBC-Outside Back Cover.

REAL MAGIC®

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Factory: 14-16, Lorong Kampong Jawa, Off Jln Bagan Luar, 12000 Butterworth, Penang, Malaysia.
R&D: 18, 1-2-1 Kompleks Mayang Mall, Jalan Mayar Pasir 1, 11950 Bayan Baru, Penang, Malaysia.
6643, Jalan Bukit Merah, Tebuk Panchor, 34310 Bukit Merah, Perak, Malaysia.
Lot 862, Mukim 14, Daerah Seberang Perai Selatan, Penang, Malaysia.
Tel/Fax: 04-5889988/ 5889788/ 5873166/ 3323118/ 6189014, 04-5889912/ 3244118
Web/email: www.realmagic-tech.com sales@realmagic-tech.com

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"As a global leader in the technology and quality of power transmission and distribution systems for over 100 years, Toshiba contributes to supplying reliable energy all over the world from power plants, to factories, transportation systems, and even to your home. Utilizing our strategic global network of sales & manufacturing bases, Toshiba is committed to provide leading product and services to our customers."

- Transmission & Distribution
- Control & Automation
- Energy Solutions
- Manufacturing & Services

Committed to People.
Committed to the Future.

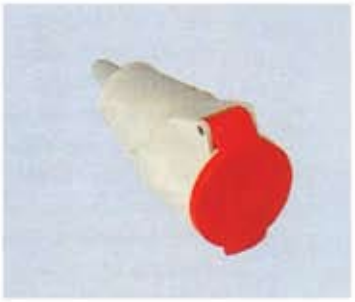
Plugs, Socket-Outlets and Distribution Systems for Industrial Purposes



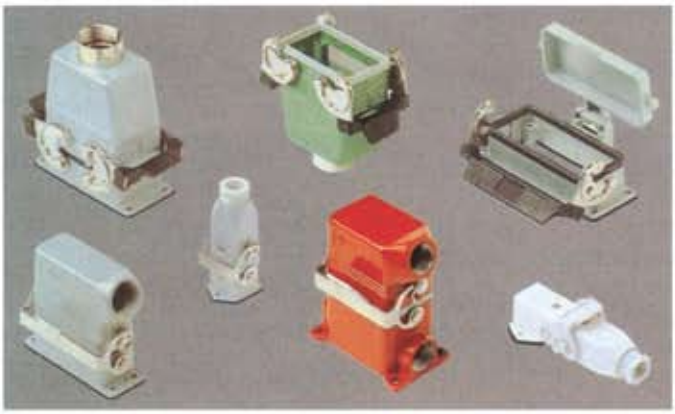
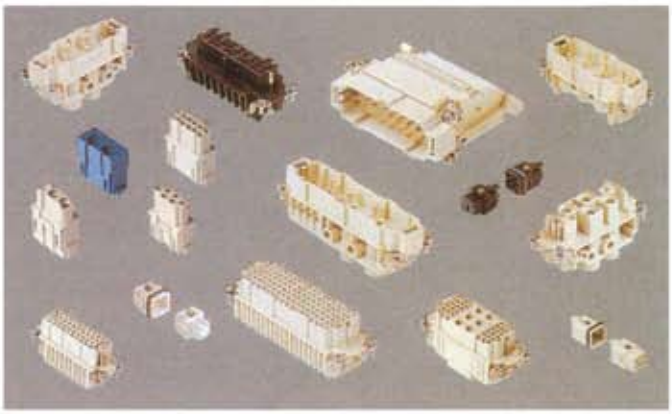




Sole Agent


Multipole Connectors for Industrial Purposes

CHI-TAK ELECTRICAL (SEL) SDN. BHD. (163203-T)

25, Jalan 20/14, Paramount Garden, 46300 Petaling Jaya, Selangor, Malaysia.
Tel: +603-78759622(6 Lines) Fax: +603-78752085, 78772014
E-mail: chitakpj@yahoo.com