

Good Practice in Installation

What guarantees the adherence to the IP (Ingress Protection) rating? Security is only guaranteed by type-tested, matching systems! Only coordinated systems assure safety.

Observance of IP Protection in an Installation

Systems used industrially are exposed to special stress and for safety reasons must be protected from external influences. Dust, dirt and water are environmental influences that must

not present a problem for a product used for industrial purposes.

IP protection and standards define the properties which a product must ensure in respect of contact, dust and water protection.

What steps are necessary to combine individual products in a safe system?

Right ✓



1. All components of a system must assure the same IP rating.

Wrong X



Right ✓



4. Observance of torque values of box wall and cable gland respectively.

Wrong X



2. Cable entry and box: hole diameter of cable entry and knockouts of box must match.



5. Sealing of wall mounting in interior of box with sealing caps.



3. Cable entry and cable: sealing areas must match.



6. Insert cable with strain relief.



ST Circular: No. 1 Year 2008

The Energy Commission (ST) has issued a circular on the use of Malaysian Standards on Electrical Installations of Buildings as guidelines in electrical installation for Peninsular Malaysia and Sabah. The circular took effect from 13th March 2008. The standards are:

- (i) MS IEC 60364, Electrical Installations of Buildings (RM 690)
- (ii) MS 1936: 2006, Electrical Installations of Buildings – Guide to MS IEC 60364 (RM 100)
- (iii) MS 1979: 2007, Electrical Installations of Buildings – Code of Practice (RM 20)

The above standards can be purchased online at www.msonline.sirim.my or at SIRIM Berhad, Information Resource Section, Block 1, SIRIM Complex, Shah Alam, Tel: 603-5544 6118 / 6102.

MS IEC 60364 Electrical Installations of Buildings is a total adoption of IEC 60364. The standards contain rules and guidelines for the design and erection of electrical installations of buildings so as to provide safety and proper functioning of the use intended. MS IEC 60364 will be used to replace BS 7671: 1992 (previously IEE Wiring Regulations 16th Edition). Generally BS 7671:1992 meets the minimum standard of MS IEC 60364.

To make MS IEC 60364 user friendly to all electrical practitioners, the guide to MS IEC 60364 (MS 1936: 2006) has been developed. The guide focuses on Malaysian industrial norms, prevailing practices, and the requirements of the relevant act and regulations.

Code of Practice (COP), MS 1979: 2007 containing good engineering practice was subsequently developed to be used by consumers in Malaysia to ensure that domestic and residential installations are safe and meet the requirements of the act and regulation.

NIKKON®

Light up the World

NIKKON

Light is an incredible tool.....

It serves to identify, guide, emphasis, decorate, increase safety.....to illuminate.



STREET LIGHTING



HIGHBAY



FLOODLIGHT

INDUSTRIAL LIGHTING

Products Range:

- Floodlight
- Highbay & Lowbay
- Street Lighting
- Architectural Lighting
- Lighting Accessories
- HID Ballast & Ignitor

(Certified by CE, SIRIM, TNB, JKR, SESCO)



"EYE IWASAKI - Malaysia Exclusive Distributor"



Success Electronics & Transformer Manufacturer Sdn. Bhd. (Company No.: 200853-K)

(A Wholly Owned Subsidiary of Success Transformer Corporation Berhad - Main Board of Bursa Malaysia Securities Berhad)

No. 3, 5 & 7, Jalan TSB 8, Taman Industri Sungai Buloh, 47000 Sungai Buloh, Selangor Darul Ehsan, West Malaysia.

Tel: +603-6157 2788 (Hunting Line) / 2785 / 2787 Fax: +603-6157 2722 / 2723

E-mail: ses@success.com.my; marketing@success.com.my



QPS[®]
Quality Products & Services

To design, manufacture and deliver superior quality products are our commitment to customers at all times.....



POWER TRANSFORMER



AUTOMATIC VOLTAGE STABILIZER



ENERGY SAVING LUMENS REGULATOR



ELECTRICAL APPARATUS

Products Range:

- Power Transformer
- Variable Voltage Transformer
- Motor Starting Auto Transformer
- Harmonic Circuit Filter Reactor
- Line Reactor
- Energy Saving Lumens Regulator
- Servo Motor Automatic Voltage Stabilizer

Other Products Range:

- **“SES”** Current Transformer
(ASTA Certified)
- **“SUPER-LITE”** Battery Charger Series.



SUN POWER AUTOMATION SDN BHD

EXCLUSIVELY

LG MEC

MCCB / MCB / ACB / VCB / MS / MMS / Mini MS

LS Industrial Systems

New Name of  LG Industrial Systems



Metasol
Meta Solution

Susol
Super Solution

Ics = 100% of Icu

MEC

Low Voltage Circuit Breakers & Contactors...

LG MEC

MCCB / MCB / ACB / VCB / MS / MMS / Mini MS

LS Industrial Systems

New Name of  LG Industrial Systems



Variable Frequency Drive / Inverter

STARVERT Series



XGT Series



PMU30 Series

Inverters, PLCs & HMIs



Capacitors And Reactors

ABB



Surge Arresters

Lovato
electric



*Digital metering instruments, Automatic transfer switches
Automatic power regulators...*

Indelec
lightning protection



Early Streamer Emission Lightning Conductors

Sun Power Automation Sdn Bhd (639503-W)

Lot 28242, Kg. Jaya Industrial Area, 47000 Sg. Buloh, Selangor, Malaysia.

Tel: +603-615 77 555 (Hunting), +603-614 53 333 Fax: +603-615 77 666

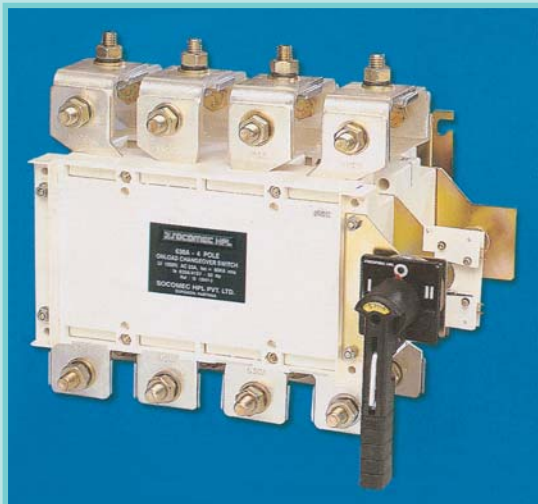
Email: general@sunpowerholdings.com.my



**Power Measurement, Control
and Protection Solutions**



Protector Trip Relays



**The Cubicle Onload Changeover Switch
(63A - 3105A, 415V, AC - 23A)**



Switch Disconnecter Fuse



STANTRIC SDN. BHD. (218406-P)

No. 8 & 10, Jalan Perdana 2/3A
Pandan Perdana, 55300 Kuala Lumpur
Tel: 603-9281 0688 (4 Lines)
Fax: 603-9281 0689 / 9287 9482
E-mail: stantric@streamyx.com

Thermal Safety of Instantaneous Water Heaters

By Tee Tone Vei, Thermo Hygro Consultants Sdn Bhd.

Introduction

Instantaneous Water Heater is a popular electrical appliance in Malaysia, millions of units have been installed in Malaysian homes, and it is estimated more than 300,000 units were being installed in year 2007 alone. Almost all of them are used as direct shower heater.

The functional modules of an electric instantaneous water heater in South East Asia's design usually comprise a heating element that heats up the water passing through the heating container, a flow sensing device that turns on the heating element only when sufficient water is passing through, a power control device that controls the heating element's output power, and a tap that controls the water flow rate.

To comply with safety regulations, it should also incorporate several safety devices, including thermal protection devices.

Risk of Scalding

The outlet water temperature from a hand shower is derived from the function of an inlet water temperature, power, and flow rate, as shown in the simplified equation: $\text{Temperature Rise } ^\circ\text{C} = \text{kW} / (\text{Flow rate in l/m} \times 0.076)$, the higher the power, or the lower the flow rate, increases the shower temperature. Also, if the inlet water temperature increases, the shower temperature will be increased proportionally.

The current MS standard limits the maximum shower temperature to 55°C, being at full power and at a minimum flow whereby the heater can operate. This protects the user from being scalded. However, this is based on a constant flow and at an inlet water temperature of 25 +/- 5 °C.

In many events in Malaysia the inlet water temperature can be much higher, due to reasons such as metal cistern tank / metal water filter / metal water piping that is exposed to sun light, flow sensor being activated at a much lower flow (which is quite common), or just simply hot weather. In such event, the maximum shower temperature would be increased proportionally and could be overshoot up to 70 °C.

Furthermore, after the water tap is being shut off, the residual heat in the element will push the remaining water in the heating container to a higher temperature, thus when the tap is turned on again shortly after shut off, the shower water could have a very high temperature for the initial few seconds.

Severe Scalds in Seconds

It takes only a few seconds for a severe scald to occur. According to the information published by Child Accident Prevention Trust in UK, healthy adult skin requires 30 seconds of exposure to water at 54°C – 55°C before third-degree burning occurs, but only 5 seconds at 60°C and less than one second at 70°C. However, the skin of children and the elderly are even more sensitive to extreme temperatures.

It is therefore important to have a Thermal Protection Device incorporated to prevent scalding, rather than relying on the flow sensor alone. The device could be ranging from a digital temperature control to a mechanical Temperature Limiter (some referred to as Thermostat, usually self-resetting), usually the protection temperature is set in between 42°C to 52°C.

Risk of Fire and Electrocutation

Most of the heating element used in instantaneous water heater can only survive if it is immersed in water. In the event of a malfunction in the control circuit or flow sensing device, the heating element may be energized even if there is no water flowing through.

When such event happens, the remaining water in the container will be heated up very quickly and may boil within a few seconds. Even if the Thermal Protection Device as described earlier is activated and cuts the heating element out when it is overheated, but since it is usually a self-resetting type, the heating element will be switched on again when the water in the container has been cooled off. Each of these cycles will take some water off, either through evaporation or escape through the outlet, until the container is totally dried out, and thus cause Dry-Burn Failure.

Dry-Burn Failure poses serious safety risks. Picture 1 & 2 below show a badly burned plastic container, and thus poses fire hazard. Picture 3 shows a punctured heating element's protection sheath, and thus allowing water to be in contact with electrical live. In all

scenarios above, when an unaware user turns on the tap, water may leak to other parts of the internal circuit and this risks electrocution.

There are a number of dry-burned cases that had happened in the market. In view of this, SIRIM and Suruhanjaya Tenaga had emphasised to all Malaysian manufacturers in July 2007 the importance of incorporating a safety Thermo-Cut out to prevent Dry-Burn failure, in addition to the Thermal Protection Device that prevents scalding. This Thermo-Cutout should be Non-Self-Resetting so that the user cannot continue to operate the malfunction appliance, and it should cut off all parts of the internal circuits.

Summary

When designed, manufactured, and used correctly, an Instantaneous Water Heater is a very reliable appliance. Care should be taken when choosing and using it as a shower heater:

- 1) Ensure the appliance incorporates 2 levels of Thermal Protections, one to protect from scalding and another one to protect from Dry-burn Failure. (More than half of the older installed units and possibly some new units in the market have only either one of the Thermal Protections).
- 2) When using the shower heater, always test the water temperature by hand during starting and re-starting, and if necessary, perform adjustments accordingly. This is especially important during the showering of young children and the elderly as their skin are more sensitive to extreme temperatures.

Mr Tee Tone Vei is the Principle Consultant in Thermo Hygro Consultants Sdn Bhd, a design and consultancy firm specialised in electrical heating appliances R&D, mainly dealing with international projects. He is also a member of the Technical Committee and Chairman of Heating Appliance Working Group for SIRIM and Department of Standards Malaysia in Safety of Household and Electrical Appliances for MS and IEC standards.

He can be reached at: teetv@thermohygro.com



Picture 1 - A burnt plastic container that has been caused by "Dry-Burn Failure".



Picture 2 - A dissected plastic container that shows the failed heating element.



Picture 3 - A punctured heating element protection sheath.



Low Voltage Products



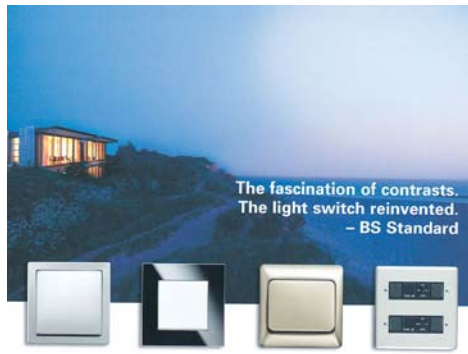
Emax air circuit-breakers



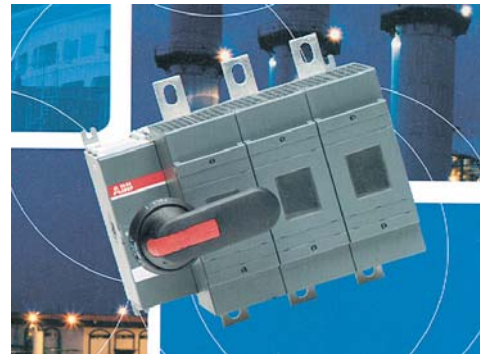
Moulded Case and Air Circuit Breaker



Switch-Disconnectors OT and OETL



Switch



PowerLine fuses OS and OESA



Tmax. T Generation



Contactor



Softstarters



System pro M Compact®



MCB and RCD

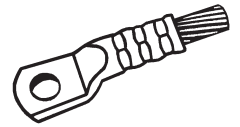


KUASA JATI SDN BHD (550836-X)

No. 22 C, Jalan Anggerik Vanilla 31/93, Kota Kemuning, 40460 Shah Alam, Selangor Darul Ehsan, Malaysia.
TEL: 03 - 5122 8859 FAX: 03 - 5121 8859 E-MAIL: info@kuasajati.com WEBSITE: www.kuasajati.com

A GOOD ELECTRICAL CONNECTION BEGINS WITH THE CONNECTOR

Malaysian Standard MS 1540:2002



SPECIFICATION FOR THE MATERIAL, MARKING AND DIMENSIONS OF CRIMP TYPE CABLE LUGS FOR USE WITH COPPER CONDUCTORS IN LOW VOLTAGE APPLICATIONS

Importance of using Cable Lug compliant with MS 1540:2002

- To prevent joints and terminations from overheating which will cause **power loss** and even **high risk to fire**
- To prevent inferior, sub-standard and questionable quality cable lugs to be used in the electrical installation
- To have standardized cable lugs to suite the crimping die
- Suitable for cable compliant with IEC 228



'C'Clamp
Model: U-T44 to U-T450



MCCB Bimetal & Cable Lug
For MCCB



Cable Lug & Cable Link
Sizes: 1.5mm² to 1,000mm²



Bimetal Lug & Link
Size: 16mm² to 630mm²
Tested to IEC 1238-1:1998



CK-10
1.5 to 10mm²



CH-630 Hydraulic Indent Tool
Al. Ferrule & Bimetal
300mm² to 630mm²



CP-1000 Hydraulic Crimping Head
Dies: 500mm² to 1,000mm²



CH-240 Hydraulic Indent Tool
Al. Ferrule & Bimetal
16mm² to 240mm²



CK-16
1.5 to 16mm²



BC-150 Bar Cutter
Max. 10mm (thickness)
Max. 150mm (width)



CP-630 Foot/Hand Pump
Max. Pressure:
700Bar/10,000p.s.i



1HP-EP Electric Pump
Max. Pressure:
700Bar/10,000p.s.i



HP-20 Hole Puncher
Dies: 10.5, 13.5,
17.5 & 20.5mm



BB-150 Bar Bender
Max. 150mm (width)



HC-52 Hole Cutter
Dies: 16.8mm – 52mm



CC-630 Cable Cutter
Up to 630mm² Cu/Al
Stranded Cable



CONWAY TERMINALS MANUFACTURER SDN. BHD. (049613 U)

Lot 1298, Bukit Kemuning, Jalan Kampong Jawa, 42450 Klang, Selangor, Malaysia

Tel: + 603-5122 1223/ 1068 Fax: + 603-5121 1109

E-mail: ctm@conway.com.my Website: www.conway.com.my

CONDUIT, CORRUGATED CONDUIT & CONDUIT FITTING



Your Reliable Manufacturer For Electrical Wiring System

SAGA
Heavy Duty

PVC-LINK
Symbol of Wiring

TND
Heavy Duty

WIREMAN

Mega

MP

Cyber

HERO

MEGAPOWER GROUP
SINCE 1990

Lot 1888, Jalan KPB 7, Kawasan Perindustrian Balakong, Bukit Belimbing, 43300 Seri Kembangan, Selangor, D.E., Malaysia
Tel: (6) 03-8962 3333 Fax: (6) 03-8962 2266 E-mail: enquiries@megapower.net.my Home Page: www.megapower.net.my

WINDOW TO THE WORLD OF RELIABLE & QUALITY ELECTRICAL PRODUCTS



Mega T5 Fluorescent Light



"PVC-LINK" Watertight Flexible Conduit & Adaptor



FM Cable Marker



Wiring Accessories



"PVC-LINK" Cable Tie



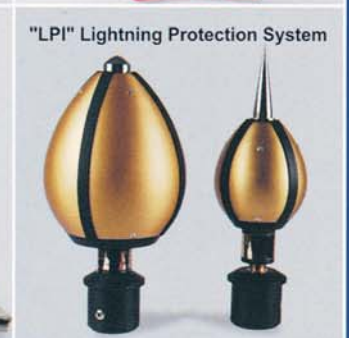
Cable Roller & Wire Puller



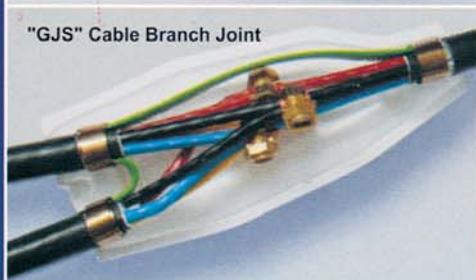
"PVC-LINK" PG & M Gland IP68



"EUROSMART" Stainless Steel Cable Tie



"LPI" Lightning Protection System



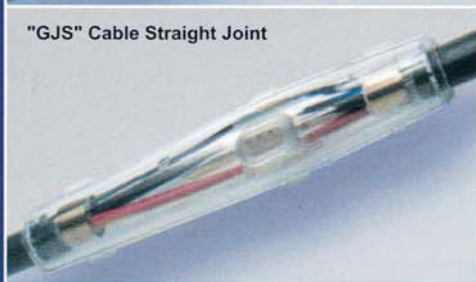
"GJS" Cable Branch Joint



"EUROTAG" Tel DB & Tel Tag



"EUROFAN" Ventilation & Exhaust Fan



"GJS" Cable Straight Joint



"EUROTAP" High Tension Tape & Line Tap



"Changbao" Halogen Free Heat Shrink

Your Reliable Partner For Electrical Wiring Accessories

EUROFAN™

EUROTAG™

EUROTAP™

Furseweld™



Global Joining Systems

PCE

Thomas & Betts



Authorized Distributor:



MEGAPOWER GROUP
SINCE 1990

Lot 1888, Jalan KPB 7, Kawasan Perindustrian Balakong, Bukit Belimbing, 43300 Seri Kembangan, Selangor, D.E., Malaysia
Tel: (6) 03-8962 3333 Fax: (6) 03-8962 2266 E-mail: enquiries@megapower.net.my Home Page: www.megapower.net.my

TECO

CU & CN Series ▶

AC/DC Magnetic Contactors

5A ~ 300A

Thermal Overload Relays

0.3AMP ~ 185AMP

Electronic Overload Relays

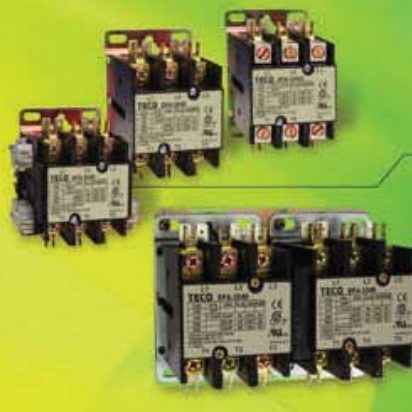
0.1AMP ~ 150AMP



◀ DPA Series

Definite Purpose

Contactors for HVAC Systems



Molded Case Circuit Breakers ▶



TAIAN-JAYA ELECTRIC SDN BHD (170906-A)

(An associate company of TECO group)

No. 7861, 7863, Jalan Teluk Batu 1, Batu 4 1/2, Jalan Kebun,
Seksyen 36, 40470 Shah Alam, Selangor Darul Ehsan.

Tel: 603-5161 1010, 5161 1129 Fax: 603-5161 1869

E-mail: taian@taianjaya.com



Energy Auditing as a Tool to Achieve Excellence in Energy Management

This article is published with the generous permission from the writer, Mr Phubalan Karunakaran of Pusat Tenaga Malaysia. The article was first published in BEM's The Ingenieur, March-May 2008 Issue.

Conducting an energy audit is an art by itself. In Albert Thurman's Handbook of Energy Audits, he quotes in his own words,

"The Energy audit serves to identify all of the energy streams into a facility and to quantify energy use according to discrete functions.

An energy audit may be considered as similar to the monthly closing statement of an accounting system. One series of entries consists of amounts of energy which were consumed during the month in the form of electricity, gas fuel, oil, steam and the second series lists how the energy was used: how much for lighting, in air conditioning, in heating, in process, etc. The energy audit process must be carried out accurately enough to identify and quantify the energy and cost savings that are likely to be realised through investment in an energy savings measure."

In simpler terms, energy audits can be summarised as a systematic search for energy conservation opportunities.

Energy Audits & Relationship With Energy Management

In fact, energy auditing is listed as one of the required components to achieve excellence in energy management as seen below:-

- Top Management Commitment
- Energy Management System and Policy
- Establishment of Energy
- Management Team (EMT)
- Conducting Energy Audit (EA)

- Implementation of Energy Saving Measures and Projects
- Monitoring and Control
- Training and Awareness Programme

For any energy conservation programme to take off, the organisation must first appoint an official responsible (commonly described as an 'Energy Manager') for the monitoring of energy consumption within the organisation. The person selected must have sufficient clout and authority in order to prioritise energy efficiency as an important goal of the company's cost cutting efforts. In fact, the Energy Manager can be appointed from the ranks of the Engineering or Facilities Management division of that organisation. In some cases, if the company is far sighted enough, they could even appoint an accountant to this level as financial personnel are especially attentive when it comes to productivity improvement at minimum costs!

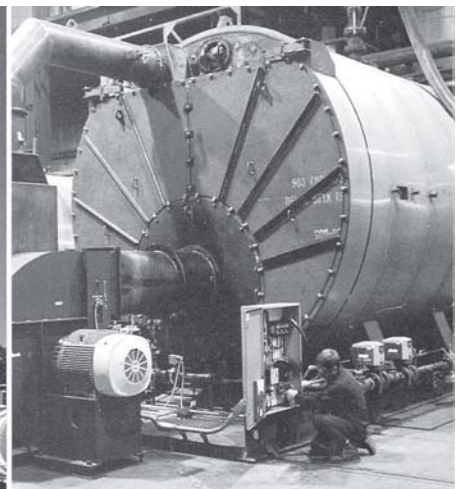
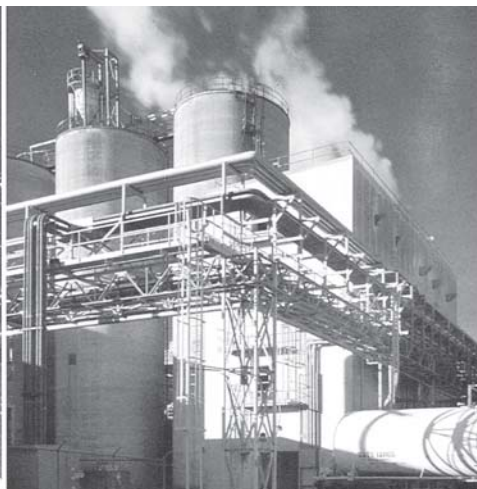
The Energy Manager is then responsible for setting an Energy Management System along with a company energy policy statement. Once these initiatives have been approved by the organisation's Board of Directors, the Energy Manager is then free to form an Energy Management Team (EMT). He (or she) is allowed to pick any member of the organisation's serving staff from various divisions. If the company is large and diverse enough, the energy manager should consider appointing members from the Procurement, Occupational Safety, Quality and Accounting departments apart from the normally targeted Engineering, Preventive Maintenance and

Facility Management divisions. Benefits of appointing members from these divisions are listed in Table 1.

Benefits Of Conducting Energy Audits

The conduct of an energy audit and the subsequent implementation of the recommended energy saving measures can improve the energy efficiency levels of any organisation. The numerous benefits are listed below:

- Energy costs can be reduced. Typically, energy costs amount to 15 to 40% of the production cost. What is even better is that the company can subsequently redirect the resulting savings to improve the facility or the business. The savings can also be passed on to the customers and boost the sales of the company.
- Quality of the product can also be improved. Take note that energy efficiency and product quality are closely entwined with effective maintenance and attention to operational details. It can lead to corollary benefits such as reduced maintenance costs and improved worker safety. Many energy efficient technologies are more reliable than their inefficient counterparts. For example, fluorescent lighting will require less maintenance and fewer replacements than incandescent lighting. Repairing steam leaks and insulating steam lines can make the steam system safer for the operators who work around it. This, in turn, can improve employee morale and productivity.





SAMA KEBEL SDN. BHD.

砂馬電纜有限公司

Lot 16, Jalan RP 3, Rawang Perdana Industrial Estate,
48000 Rawang, Selangor Darul Ehsan, Malaysia.

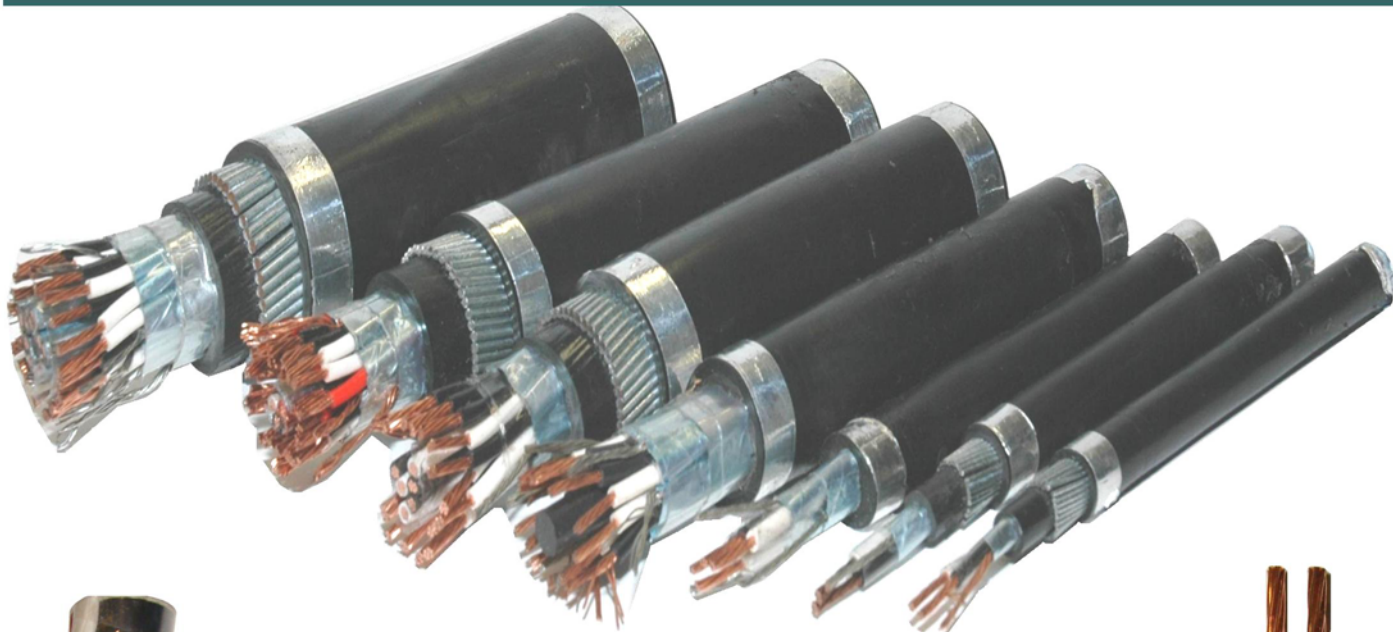
Phone: +60-3-6092 1353

Fax: +60-3-6092 1352 / 6092 9871

Email: yuh @ samakebel . com

Website: <http://www.samakebel.com>

Wires & Cables Manufacturer



- ♦ PVC or Low Smoke Halogen Free (LSHF) Wire
- ♦ PVC or LSHF or NBR Flexible Cable
- ♦ PVC or XLPE or LSHF Cable (Non-Armoured Cable)
- ♦ Multicore PVC or XLPE or LSHF Cable
(Galvanised Steel Wire Armoured or Non-Armoured Cable)
- ♦ Multicore Screened Control / Instrument Cable
(Galvanised Steel Wire Armoured or Non-Armoured Cable)
- ♦ LSHF FiRLL Fire Resistant Cable
to IEC60331 or SS299 or BS6387 Cat CWZ; IEC60754-1, IEC60754-2,
IEC61034-2, IEC60332-3-22, IEC60332-3-23, IEC60332-3-24
(Galvanised Steel Wire Armoured or Non-Armoured Cable)
- Braided Cable (Copper Wire or Tinned Copper Wire or Stainless Steel Wire
or Galvanised Steel Wire Braided Cable)
- Others such as Auto cables, Coaxial cables, Oil & Gas cables and Special cables

Also manufacturing tailor-made cables to suit clients' specifications upon request

- RoHS compliance materials (Lead Free materials);
- High Flame Retardant to IEC60332-3-22 or IEC60332-3-23 or IEC60332-3-24;
- Termite Protection;
- Rodent Protection;
- Ultra-Violet Protection etc.

SAMAKEBEL

SAMAKEBEL

SAMAKEBEL

SAMAKEBEL

SAMAKEBEL

Copyright © 2008 SAMA KEBEL SDN BHD. All Rights Reserved.

Table 1: Basis for selection of Energy Management Team members

Department	Functions Within Energy Management Team
• Engineering • Preventive Maintenance • Facilities Management	Normally, the finesse of energy audit execution is best served by the selection of staff from these divisions. The members within this division responsible for the execution of the energy audit will identify and prioritise energy saving opportunities within the organisation. The team will then focus on projects deemed critical in the company's energy consumption reduction efforts and then establish a time frame for its execution. Subsequently, the members will then set up a monitoring and verification programme where the cost and energy savings derived from the implementation of the measures will be estimated and reported to the company's management.
• Procurement • Financial	The procurement and finance departments are normally overlooked in the selection of members for the formation of an energy management team. However, it is the procurement section of an organisation which is responsible for setting up the purchasing policy of any organisation. If the members of this division are sufficiently educated in identifying energy efficient equipment, this division could then set up a Green Procurement Policy for the organisation. This means that the members will be carefully looking at the technical details of the equipment to be purchased such as expected energy consumption and lifetime CO₂ equivalent generation from the equipments lifespan usage before making their choice. These divisions would also push for the establishment of Green Labelling for the organisation's products including expected energy consumption usage to the Marketing & Business Development divisions as a promotion tool for the company to assert their superiority over rivals' manufacturing similar products. Furthermore, it is these two divisions that are normally responsible in applying for fiscal incentives as part of the Government led initiatives to promote energy conservation. Therefore, the more well versed these staff are with the concept of energy conservation, the more likely they will encourage energy conservation efforts as a cost cutting measure to the company's management.
• Occupational, Safety, Health & Environment • Quality	Executives working in this department normally come with the trained ability of identifying potential flaws in an on-going process, be it manufacturing or management. Therefore, they are potential source of human resources that can be harnessed to serve as energy auditors. Another item that most people overlook is that energy management is a key component of proving compliance with ISO 14000 environmental management standards. Effective tools for the analysis of environmental aspects of an organisation and generation of options for improvement are provided by the concept of Cleaner Production.

• Environmental benefits in the case of reduced pollution. It can help reduce pollution. With reduced pollution, payment of any existing environmental fees and fines can be minimised. This will help the organisation improve relations with Environmental Organisations, public health interest groups and housing resident associations. A case in point is the fine tuning of air fuel ratio for industrial facilities. If the combustion process is efficient, only clean 'smog' is released to the atmosphere. In Malaysia there are many newspaper reports of residents in the surrounding vicinity of an existing factory complaining of the excessive smoke or smog released by the factories. Last but not least, overall industrial energy utilisation efficiency improvement levels correlate with a corresponding reduction in green house gasses (GHG) emissions.

Various Levels Of Energy Audits

The general public needs to be aware that there are various levels of energy audits currently offered by Energy Conservation Companies (ESCOs) and other independent consultants. The type of energy audit to be undertaken depends on the objectives of the exercise, available resources, extent of work and expected results. Generally, an energy audit can be categorised into three categories: preliminary audit, detailed audit and investment grade audit. The preliminary

energy audit is essentially an initial data gathering effort. It is also referred to as a 'brief audit or 'walk through audit'. The preliminary audit normally uses available data and is completed without or with very simple measurements. The output consists of technically simple zero and low-cost measures for energy efficiency. Because of time and budget constraints, only experienced auditors can successfully conduct a preliminary audit that identifies the need for a detailed audit.

The detailed audit is an instrumented data collection of all energy consuming equipment and processes in a plant, followed by a detailed energy and cost analysis of the different processes. A detailed audit focuses mainly on capital-intensive energy savings opportunities, which have been identified in a preliminary audit. Metering of energy flows using simple but accurate equipment is an essential part of a detailed audit.

The investment grade audit (or feasibility study) focuses on capital-intensive measures and includes techno-economic analysis. The technical part contains the conceptual design of the proposed measure, a detailed estimation of capital expenditures and operations and maintenance (O&M) costs. The financial-legal part consists of the financing scheme, contractual framework and tender documents for contractors and suppliers. Investment grade audits are required whenever projects are to be implemented by ESCOs or by the companies themselves.

Resources Needed for the Conduct of Energy Audits

The following resources are needed for a successful conduct of an energy audit:-

Auditors

Auditors in this case can be from the staff serving within the Energy Management Team or be outsourced from local ESCOs currently working in the market today. For further information, please contact PTM for a list of registered ESCOs who can provide energy consultancy services.

Instruments

Portable measuring devices are required to take actual measurements and monitor parameters (eg pressure, flow, and voltage, current) of the equipment. These measurements are very important in determining energy efficiencies. Tools commonly required for energy audits include the following:

• Wattmeter/Power Factor Meter

A portable hand held wattmeter and power factor meter are very handy for determining the power consumption and power factor of the individual motors and other inductive devices, and the load factors of motors. This motor typically has a clamp-on feature which allows easy and safe connection to the current-carrying conductor, and has probes for voltage connections.

• Flowmeter

A portable flow meter which measures the flow rates in litres per second or cubic meters

高



綫

**HIGH LINE ELECTRICAL WORKS
HIGHLINE CONSTRUCTION SDN. BHD.
SYARIKAT LETRIK AMANAH
SYARIKAT LETRIK TUGUH
TEKUN GUARD SERVICE**

綫路通達電力強



高技善理工程偉

**拿督許華南
DATO' HII HUA NANG**

D.I.M.P., D.K.S.S., B.B.S.
H/P: 019-8898168, 013-8113355
E-mail : dato_hhn@yahoo.com.my

HEAD OFFICE

NO. 6A, LORONG DING LIK KONG 2,
LIGHT INDUSTRIAL PARK,
96000 SIBU, SARAWAK.
TEL: 6-084-332355
FAX: 6-084-342358

SIBU OFFICE

NO. 2C, 2ND FLOOR,
JALAN BROOKE DRIVE,
96000 SIBU, SARAWAK.
TEL: 6-084-338872
FAX: 6-084-332872

SARIKEI OFFICE

NO. 10, LOT 1563,
LORONG RENTAP 6,
LIGHT INDUSTRIAL ESTATE,
96100 SARIKEI, SARAWAK.
TEL: 6-084-653155

KUCHING OFFICE

Dd 302, 2ND FLOOR,
MJC BATU KAWAH, NEW TOWNSHIP,
93250 KUCHING, SARAWAK.
TEL: 6-084-366324

..... Continue Energy Auditing as a Tool to Achieve Excellence in Energy Management

per hour and water velocities is one of the most important energy audit equipment in water utilities.

• Thermometers

Several thermometers are required to measure ambient temperatures in relevant areas, and to measure the temperature of operating equipment.

• Tape measures

The most basic measuring device is the tape measure. Tape measures are used to verify the dimensions of the walls, ceilings, doors and distances between pieces of equipment, for example, to determine the length of a pipe.

These are just some of the equipment listed and by no means exhaustive. Further specialty equipment will be needed to perform relevant and specific measurements.

Apart from the equipment listed above, the use of sub metering is a viable and positive development which should be recommended as an energy conservation measure. Without a meter to measure individual usage, there is less incentive to conserve or stop energy wastage. Sub metering creates awareness of water and energy conservation since the factory operators will be made to keep stock of the areas in which they monitor the plant operating parameters daily. However, it must be pointed out that the use of sub metering must be combined with a monitoring and verification programme in order to provide effective results. An example of a sub metering system or hardware would be the SCADA systems so commonly utilised in buildings.

Energy Records

Energy records refer to the storage and interpretation of data used as part of the Energy Management Information System (EMIS). For example, a clear cut example would be the case of the air fuel ratio sensor that is compulsory to monitor within boiler combustion systems. A damaged or defective



Inside a manufacturing plant.

sensor may lead to increased fuel consumption and increased pollutant emissions as well as decreased power, and throttle response. Therefore, it is always vital to keep track of this figure within a data sheet form to be filled in by operators. Subsequently, it will be the engineer's or supervisor's responsibility to interpret how efficiently the system is running.

Budget & Time

As in any organisational planning, the allocation of adequate budget and training to train human capital is critical to the successful implementation of an energy management system.

Computer & Software Tools

It is not compulsory to purchase sophisticated software to interpret energy saving measures. By investing in a good spreadsheet software, (eg Ms Excel) computer peripherals and an excellent engineering manual, the results and experiments involved in the fine tune

monitoring works can be easily conceptualised and computed.

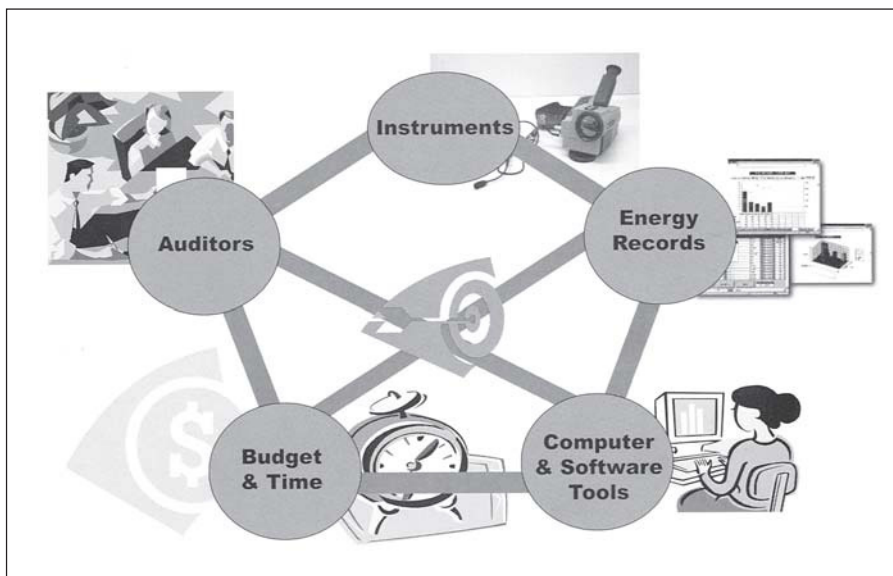
Expected Output

On the whole, energy audits produce two main results: a systematic analysis of the energy efficiency at process levels or for the overall plant; and measures to improve the efficiency levels, thus resulting in energy savings.

Energy saving measures can be achieved from three levels of practical measures that involve zero/low cost (good housekeeping), medium cost and high cost investments. Factories have the option of implementing the measures according to their priorities by selecting the preferred ones, or by combining all the measures. Experience has shown that the critical factor in the success of zero cost measures is the effective involvement of factory staff, management and the auditors. Staff morale will increase the moment they have a vested interest in carrying out energy saving measures. In fact, small monetary rewards or company recognition can go a long way in motivating company staff to save energy.

Current Status

PTM, the custodian of energy efficiency and renewable energy programmes, has been championing the cause of energy conservation for the building and industrial sectors in Malaysia. Due to the ever escalating oil prices, there has been a gradual demand in the need for energy auditing to achieve desired energy conservation targets. PTM along with various collaboration partners has audited more than 76 factories from various industrial sectors over the past seven years. According to a survey, more than 40% of the energy saving measures recommended through PTM's voluntary energy audit programme have been implemented by the factories.



Highest Energy Saving

HIGHEST ENERGY SAVINGS AVAILABLE

The ECON (Electronic Ballast) solution is Cooper Lighting's system approach to provide lamp, ballast and luminaire design to deploy further advancements in the latest High Intensity Discharge (H.I.D.) lighting technologies. ECON technology demonstrates among the highest energy savings available, generating value for the end users.

- * Highest Metal Halide H.I.D. Lumen Maintenance
- * Longest H.I.D. Lamp Life
- * Highest Sustained System Efficiency
- * Superior Color Rendering
- * Lower Operating and Maintenance Costs.

ECON ELECTRONIC BALLAST



COOPER Lighting
TECHNOLOGY

5 Years
Warranty

Energy COOPER Lighting Solution

"Energy Cost"
means not only reducing the kilowatt loads but minimizing peak energy usage and controlling spikes in the load profile"

COOPER Lighting

Sole Distributor,



MEGALUX

Your Lighting Solution.....

MEGALUX LIGHTINGS SDN. BHD.

No.12, Jalan USJ 19/4A, UEP Subang Jaya, 47620 Subang Jaya, Selangor D.E .

Tel : 03-80247933, Fax : 03-80247922 Email : info@megaluxlightings.com

www.megaluxlightings.com



Conclusion

Generally, there is considerable scope for improving energy efficiency across all industrial and commercial sectors in Malaysia. Efforts to promote energy conservation works by these sectors could lead to a substantial reduction of their costs of production or services, making them more competitive globally. As 1 kWh saved at the end user could mean a relief of 2-4 kW of the generation capacity depending on the plant load factor, transmission and distribution losses. End use efficiency and energy conservation offers the least cost option for bridging the ever-widening gap between energy demand and supply. Most people need to pay attention to the fact that significant cost savings can be made through better housekeeping, improved capital utilisation, development of cogeneration

facilities, industrial waste and heat management, and arrangements for improving the power quality of electricity supply. For new plants, the goal would be to incorporate energy efficiency from the design stage itself through pinch technology methods. Chemical engineers are particularly well versed with this concept!

In order to motivate entrepreneurs to take up energy efficiency initiatives, the Government has upped the ante by providing various fiscal incentives to ESCOs as well as companies which have carried self initiated energy conservation works. Nevertheless, energy auditing will become a motivating force only when manufacturers and the general public alike apprehend the actual benefits of energy audits as a tool to increase the bottom line and productivity, rather than view it as a statutory requirement.

Mr Phubalan Karunakaran is a Programme Manager for the Industrial Energy Efficiency division of Pusat Tenaga Malaysia. He holds a Bachelor's degree in Chemical Engineering from University Teknologi Malaysia, a master degree in Environmental Engineering from Universiti Putra Malaysia. He has been working in this field for the last 10 years within the Malaysian Industrial Energy Efficiency Improvement Project unit of PTM. As part of his duties; he has audited some 20 factories from various industries including the glass, cement and food sectors. He is also the author of the Malaysian Industrial Energy Audit Guidelines, a book which serves as a reference point on the conduct of energy audits within industries. He has also contributed to various policy and research papers regarding the application of energy conservation in this country for the 9th Malaysia Plan among others. He can be contacted at E-mail: ghazbalan@ptm.org.my. For information on the Malaysian Industrial Energy Audit Guidelines and other PTM publications, please contact Pusat Tenaga Malaysia via Tel No: 603-8921 0800.



Advertisement Booking For “TEEAM Members Directory 2009-2010”

Yes! I am interested to book an advertisement in the next directory publication.

Colour

- ☐ Inside Front Cover
☐ Outside Back Cover
☐ Inside Back Cover
☐ First Ten Pages
☐ Standard Full Page

Black & White

- ☐ One Full Page
☐ Half Page
☐ Quarter Page

The advertisement rates will be notified in due course. Please tick in the relevant box.

PLEASE TYPE OR PRINT

Name: _____

Company Name: _____

Address: _____

City & Postal Code: _____

Tel: _____ Fax: _____ E-mail: _____

Authorised Signature & Company's Stamp

Date

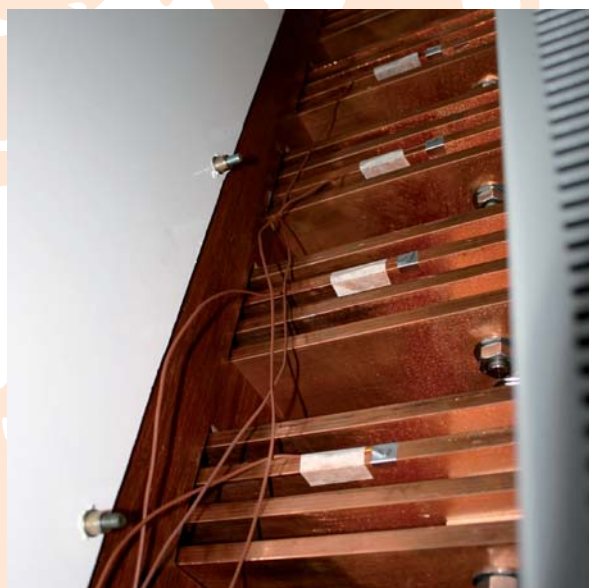
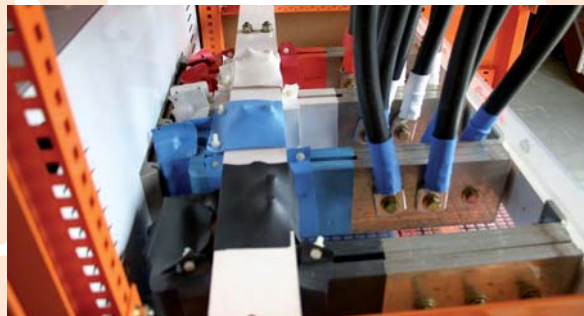
Please send the duly completed form to the TEEAM Secretariat:

The Electrical and Electronics Association of Malaysia
No. 5-B, Jalan Gelugor, Off Jalan Kenanga, 55200 Kuala Lumpur, Malaysia.
Tel: 603 – 9221 4417, 9221 2091 Fax: 603 – 9221 8212
E-mail: teeam@po.jaring.my or teeam@streamyx.com
Website: www.teeam.com



High Power

This laboratory is part of the **ITACS** group of electrical testing laboratories and specialises in LV short circuit testing for switchboards, switchgear plus temperature rise and mechanical endurance. HV switchgear and associated equipment can be tested for withstand testing and temperature rise testing.



Products:

Low voltage switchboards
ACB's
MCCB's
MCB's
RCBO's
RCD's
Low current chassis
High current chassis
Distribution boards
Consumer units
Fuse switches
Fuse holders
Load break switches
General switches
Electrical accessories
Soft starters
DOL starters
HV earth sets

Testing capabilities:

Up to 80 kA for 1 second lclw
Temperature rise up to 10 kA
12 kV Uimp
5 kV electric strength

Accreditation:

NATA
CBTL - (CB test laboratory)
Arrangements may be possible with other conformity assessment bodies such as ASTA for certification, on request, in writing, either to ITACS or to the conformity assessment body. Confirmation of any such arrangements will be at the discretion of the particularly body

Standards: (not all)

AS/NZS 3439.1
IEC 60439.1
BS EN 60439.1
IEC 60898
IEC 3947.1
IEC 3947.2
IEC 3947.3
IEC 61009
IEC 61008
IEC 60529
Plus the Australian equivalents.

ITACS offers a vast range of services along with High Power, such as Hazardous Area Equipment, EMC, Product Safety, Calibration, Cables and Photometrics

Please call our engineers today, for full technical assistance and a quotation. **Quentin Cook, ITACS Commercial Manager - quentin.cook@itacslab.com**

ITACS Head Office & EMC

4-6 Second Street,
Bowden, South Australia 5007
Postal PO Box 300
Hindmarsh, South Australia 5007
Telephone (08) 8346 8680
Facsimile (08) 8346 7072
Email: itacs@itacslab.com

ITACS High Power

27 Sheehan Road,
Postal PO Box 5140
Heidelberg West DC
Victoria 3081
Telephone (03) 9458 3988
Facsimile (03) 9458 3172

ITACS HAE

Halls Lane
East Kurrajong
PO Box 7212
Wilberforce NSW 2756
Telephone/Facsimile:
(02) 4576 3189

ITACS (HK) Ltd.

Approval Safety Testing
Room 707, West 7/F, Building 201
Tai ran Road 4, Che gong miao
Industrial Estate,
Fulian District, Shenzhen
P.R.C.
Telephone/Facsimile:
(0755) 8238 3913

ITACS[®]

www.itacslab.com

SIEMENS

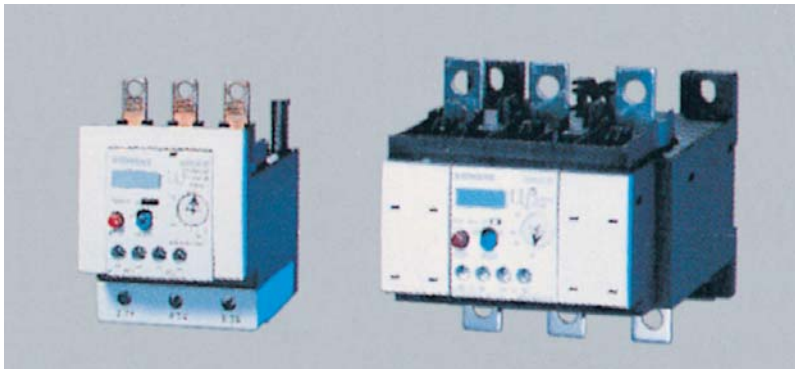
Low-Voltage Controlgears



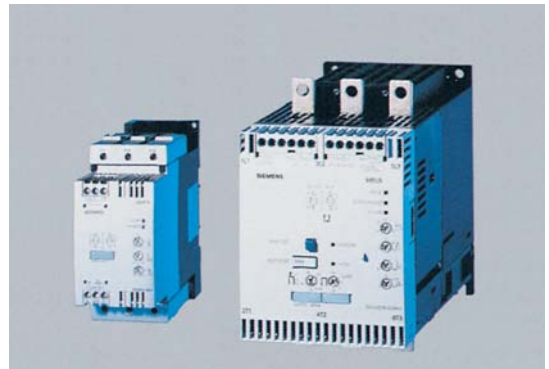
Circuit-Breakers, MCCB



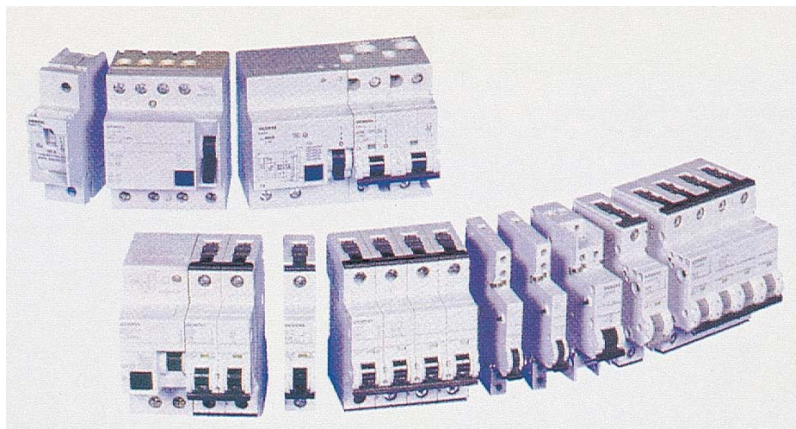
Contactors



Overload relays



Soft starters



MCB 5SY, 5SJ, 5SP, 5SM

***5 Years Guarantee**

Protection Against Case Rupture
Even without series reactor
in HIGH HARMONIC distortion conditions



** Model-RG2 only
(Low Voltage Capacitor)*

Proven "Long Life Expenctancy" > 10 years

Epson Toyocom, Taiyo Uden, Penfibre, Hospital Besar, New Strait Times, Telekom Exchange, NSCC Compound, Mid-valley, Jaya Jusco, Western Digital, P.U.B.Johor River, Mines Mall, Kaneka, Maltrad, Sirim, UiTM, Mimos, Ajinomoto, SamLing Plywood Factory, Wisma UOA, Lot 10, etc.



Wise Pro Sdn Bhd (NO. 381055P)

No. 15, Jalan Industri PBP 10, Taman Industri Pusat Bandar Puchong, 47100 Puchong, Selangor Darul Ehsan.
Tel: 03-5882 9511/7511/6511 Fax:03-5882 6994



Automatic Transfer Switch (ATS) with Smart Transfer Controller



ATS 2 pole, 3 pole, and 4 pole	Open Transition Without "OFF" position	Open Transition With or Without "OFF" position	HIGH SPEED Open Transition With "Sync Check" feature	Close Transition With "Sync check" feature
Aichi	W2/WN	WN	HPTS	WP
VITZRO TECH	W/WN	WN	-	CTTS
Transfer speed	$\geq 55\text{ms}$	Delay adjustable	$\leq 20\text{ ms}$ *To CBEMA/ITIC Curve	7-50ms

*For Data Centre Application - Parallel Redundancy.

- Heavy duty construction with Sophisticated controller
- Double-throw mechanism for dedicated source switching
- Solenoid operated for quick transfer
- Inherent mechanical interlock
- Mechanically held contacts
- High Electrical operation
- High Mechanical operation
- High withstand short time current ratings



Wise Pro Sdn Bhd (NO.381055P)

No. 15, Jalan Industri PBP 10, Taman Industri Pusat Bandar Puchong, 47100 Puchong, Selangor Darul Ehsan.
Tel: 03-5882 9511/7511/6511 Fax: 03-5882 6994

E-mail : wisepro@streamyx.com

POWERWELL

Safety • Reliability • Quality

At **POWERWELL**, we possess the necessary technical know-how to meet today's demand in electrical switchboards solutions. We upgrade ourselves continuously and re-invest in the latest available technology and machineries in the market.

This is in line with our aspiration to become a world class manufacturer of electrical switchboard where we trust in providing safe, reliable and quality power supply and services for our valued customers.

- Low Voltage Distribution Panel
- Sivacon 8PT (Siemens Technology Partners)
- Motor Control Centre (Fix or Withdrawable)
- Power Factor Correction Panel
- Auto Main Failure Panel
- Auto Synchronizing Panel
- Remote Control Panel
- Weather Proof Panel & etc



■ Malaysia Office:

Powerwell Sdn. Bhd. (220267-P)

No 1B, Jalan Anggerik Mokara 31/48, Kota Kemuning, Section 31, 40460 Shah Alam, Selangor Darul Ehsan, Malaysia.

Tel : +603-5521 3333 Fax : +603-5122 2933

Email : marketing@powerwell.com.my Website : www.powerwell.com.my

■ Business Network:

- Vietnam Factory
- Australia Agent
- Dubai Factory
- Doha Agent



BS EN ISO 9001:2000
Certificate No: 601105

Arcing Fault Containment Tested
ASTA Full Type Tested Switchboard Manufacturer

Performance of E&E Industry

The Electrical & Electronic industry is the largest contributor to production, sales, investments, exports and employment in the manufacturing sector. In 2007, the E&E industry contributed 44 per cent of total exports valued at RM266.4 billion.

Major sub-sectors of the E&E industry include semiconductors and electronic components, computers and computer peripherals, wires and cables, audio and audio visual products.

Production Index

In tandem with the global slowdown of the E&E industry, the production index of the E&E industry contracted by 1 per cent in 2007 to 139.5, compared with 140.9 in 2006.

The production index of semiconductors and electronic components increased by 3.4 per cent to 167 in 2007, compared with 161.5 in 2006. The increase was due to higher demand for consumer electronics, such as cellular phones, media players (MP3) and digital cameras.

The production index of computers and computer peripherals decreased by 5.5 per cent to 145.9, compared with 154.5 in 2006.

However, the production index of wires and cables increased by 11.8 per cent to 131.7 in 2007, from 117.8 per cent in 2006. The growth was driven by the increase in demand for insulated wires and cables. The audio and audio visual products production index decreased by 11 per cent to 62.8 in 2007, from 70.6 in 2006.

Sales

In 2007, total sales of E&E products decreased by 7.6 per cent to RM193 billion, compared RM209 billion in 2006. The decline was due to weaker demand for E&E products from traditional markets such as the USA, the EU and Japan. The slowdown of economic growth in the USA and the depreciation of the US Dollar also resulted in weaker import demand as imported goods became more expensive.

However, the sales of semiconductors and electronic components grew by 1.9 per cent to RM82.9 billion from RM81.3 billion in 2006. The growth was driven by higher demand for semiconductors and electronic components such as printed circuit boards, integrated circuits (ICs), relays, connectors, diodes, and light emitting diode (LED) products, which increased by 11 per cent.

Audio and audio visual products also registered a decrease of 13.3 per cent to RM35.1 billion in 2007 compared with RM 40.5 billion in 2006. The decrease was partly due to slowdown in exports to the USA and Japan, appreciation of the Ringgit, as well as competition from the People's Republic of China and the Republic of Korea.

Sales of wires and cables however, increased by 16.5 per cent to RM8.9 billion in 2007, compared with RM7.7 billion in 2006. The growth was driven by higher domestic demand for electric power cables and wires due to increased demand in construction activities and the housing sub-sector.

Employment

The E&E industry provided 372,165 jobs or 33.8 per cent of total employment in the manufacturing sector in 2007. However, employment in the E&E industry decreased by 3.3 per cent from 384,942 persons in 2006. The decrease was due to relocation of companies, voluntary separation schemes (VSS) due to restructuring exercises and wider usage of automation.

Table 1: Production Indices of Selected E&E Industry Sub-Sectors

Sub-Sector	2007	Change (%)	2006
E&E Industry	139.5	-1.0	140.9
Semiconductors and electronic components (Semiconductors devices, ICs, valves, micro-assemblies, transistors, etc)	167.0	3.4	161.5
Computers and computer peripherals	145.9	-5.5	154.5
Wires and cables	131.7	11.8	117.8
Audio and audio visual products	62.8	-11.0	70.6

Source: Department of Statistics, Malaysia.
Note: Base Year 2000 = 100

Table 2: Sales of Selected E&E Products

Product	2007 (RM billion)	Change (%)	2006 (RM billion)
Electrical and Electronics	193.0	-7.6	209.0
Semiconductors and electronic components (Semiconductors devices, integrated circuits, valves, micro-assemblies, transistors, etc)	82.9	1.9	81.3
Computers and computer peripherals	54.1	-19.9	67.6
Audio and audio visual products	35.1	-13.3	40.5
Wires and cables	8.9	16.5	7.7

Source: Department of Statistics, Malaysia.

Employment in the semiconductors and electronic components sub-sector contracted by 7.2 per cent to 181,356 persons, compared with 195,372 persons in 2006. The semiconductor and electronic components sub-sector contributed 48.8 per cent of total E&E employment.

Employment in the computers and computer peripherals sub-sector, increased by 4.6 per cent to 67,709 persons in 2007 from 64,730 persons in 2006. The increase was due to a strong demand for electronics devices especially, mobiles and hand-held devices, and IT related products.

The employment in the audio and audio visual products sub-sector, decreased by 8.1 per cent to 48,412 persons in 2007, compared with 52,689 persons in 2006. Employment in the wires and cables sub-sector recorded a marginal decrease of 0.5 per cent to 13,738 persons in 2007, compared with 13,813 persons in 2006.

Productivity

In 2007, the productivity level of the E&E industry grew by 9.4 per cent to RM100,539, compared with RM91,930 in 2006. Among the sub-sectors, double digit growth was recorded for wires and cables (19.3 per cent), semiconductor devices (16.6 per cent), and electronic valves and tubes, printed circuit board and other electronic components (4.2 per cent). Higher generation of added value in the E&E industry was attributed to the adoption of more advanced manufacturing operations, particularly in the semiconductors sub-sector. However, computers and computer peripherals registered a decline in productivity of 6.3 per cent.

The labour cost competitiveness of the E&E industry improved as Unit Labour Cost declined by 9.4 per cent, particularly in the wires and cables and semiconductor devices sub-sectors.

Investments

A total of 144 E&E projects were approved in 2007, with total investments of RM15.1 billion, compared with RM10 billion in 2006. The semiconductor and electronic components sub-sector attracted the major share of the investments amounting to RM10.7 billion.

Décor Poles



- *Spun CONCRETE Poles*
- *JKR Approved*



- Power Distribution Poles
- Telecommunication Poles
- Street Lighting Poles
- Compound Lighting Poles
- Sports Lighting Poles
- CCTV Poles
- Concrete Monopoles
- Traffic Poles
- Bollards
- All Range Of Decorative Concrete Poles



Décor Poles Sdn. Bhd. (635024-P)

Authorized agent for PMW Concrete Industries Sdn Bhd

Lot 133077 , Jalan Lahat , Bukit Merah Industrial Estate ,
31500 Lahat , Perak , MALAYSIA .

Tel : +605 - 322 4690

Fax : +605 - 322 4475

Website : www.decorpoles.com.my

E-mail : info@decorpoles.com.my

..... Continue Performance of E&E Industry

Table 3: Employment in Selected E&E Sub-Sectors

Sub-Sector	2007 (Persons)	Change (%)	2006 (Persons)
Electrical and Electronics	372,165	-3.3	384,942
Semiconductors and electronic components (Semiconductors devices, integrated circuits, valves, micro-assemblies, transistors, etc)	181,356	-7.2	195,372
Computers and computer peripherals	67,709	4.6	64,730
Audio and audio visual products	48,412	-8.1	52,689
Wires and cables	13,738	-0.5	13,813

Source: Department of Statistics, Malaysia.

Table 4: Productivity Indicators of Selected E&E Sub-Sectors

Sub-Sector	Productivity (RM'000)			Labour Cost per Employee (RM'000)			Unit Labour Cost (RM)		
	2007	Change	2006	2007	Change	2006	2007	Change	2006
		(%)	(%)		(%)	(%)		(%)	(%)
E&E Industry	100.5	9.4	91.9	23.8	3.6	23.0	0.0383	-6.4	0.0409
Computers and computer peripherals	98.8	-6.3	105.4	21.4	-0.7	21.6	0.0190	0.9	0.0188
Wires and cables	121.1	19.3	101.5	19.5	8.6	17.9	0.0256	-23.9	0.0337
Semiconductor devices	134.2	16.6	115.1	31.2	6.4	29.4	0.0538	-10.6	0.0602
Audio and audio visual products	59.2	-0.04	59.2	25.0	4.8	23.9	0.0639	10.0	0.0581
Electronic valves and tubes, printed circuit boards and other electronic components	72.3	14.2	63.3	20.7	2.4	20.3	0.0519	-2.8	0.0531

Source: Malaysia Productivity Corporation Computed from Monthly Manufacturing Survey and Annual Manufacturing Survey, Department of Statistics, Malaysia.

Foreign investments remained an important source and accounted for 90.7 per cent or RM13.7 billion of total investments in the E&E industry, while domestic investments accounted for 9.3 per cent or RM1.4 billion.

Table 5: Investments in the E&E Industry

Description	2007	Change(%)	2006
No. of projects approved	144	-15.3	170
Total investments (RM bil.)	15.1	51.0	10.0
Foreign (RM bil.)	13.7	59.3	8.6
Domestic (RM bil.)	1.4	-7.1	1.4

Source: Malaysian Industrial Development Authority.

Despite the slowdown in the global E&E industry, this industry attracted the highest level of foreign direct investments in 2007. Major sources of investments were Japan with investment amounting to RM4.4 billion, Germany (RM2.8 billion), Singapore (RM1.5 billion), the Netherlands (RM1.4 billion) and the USA (RM1.3 billion).

The high foreign investments reflected the confidence of foreign investors in the long-term growth potential of the industry in Malaysia. The increase in foreign investments will accelerate growth in production and exports of electronics in the coming years.

Exports

In 2007, E&E exports contributed 44 per cent of the total export and accounted for 58.9 per cent of the total exports of the manufacturing sector. However, E&E exports in 2007 decreased by 5.2 per cent to RM266.5 billion from RM281 billion in 2006.

Among the factors that contributed to the slowdown in E&E exports include the downward pressure on consumer electronics prices which continued to depress the sales value, and the appreciation of the Ringgit (approximately 7.7 per cent) in 2007. In addition competition from the People's Republic of China, Thailand and Vietnam, the sub-prime mortgage crisis in the USA, credit tightening which affected consumer spending limits in Japan and Europe also contributed to the slowdown in exports.

Major E&E exports were electronic components, integrated circuits, micro-assemblies, transistors and valves, accounting for 36.2 per cent of total E&E exports, valued at RM96.5 billion; and automatic data

processing machines, which accounted for 20.8 per cent with export value of RM55.5 billion.

Semiconductor exports grew by 3.2 per cent to RM96.5 billion, compared with RM93.5 billion in 2006. The export of semiconductors to the USA grew by 13.4 percent in 2007, valued at RM13.5 billion, compared with RM11.9 billion in 2006. The increase was in tandem with growing global demand for electronic chips.

Table 6: Exports of Selected E&E Products

Product	2007			2006	
	RM (billion)	Share (%)	Change (%)	RM (billion)	Share (%)
Total Exports of E&E Products	266.5	100.0	-5.2	281.0	100.0
Office machines and automatic data processing machines and parts	93.1	35.0	-9.2	102.6	36.5
Office Machine	0.9	0.3	-0.6	0.9	0.3
Automatic data processing machines	55.5	20.8	-7.2	59.8	21.3
Parts for office machines and automatic data processing machines	36.7	13.8	-12.2	41.8	14.9
Telecommunications and sound equipment	45.1	17.0	-14.1	52.7	18.8
Television receivers	4.7	1.8	-0.8	4.7	1.7
Radio broadcast receivers	6.3	2.4	-6.4	6.7	2.4
Sound recorders	5.5	2.1	-28.2	7.7	2.7
Telecommunications equipment and parts	28.8	10.8	-14.3	33.6	12.0
Electrical machinery, apparatus and appliances and parts	128.0	48.0	1.8	125.74	4.7
Electrical power machinery and parts	1.9	0.7	0.5	1.9	0.7
Electrical apparatus for electrical circuits and printed circuits	14.0	5.3	-10.6	15.7	5.6
Equipment for distributing electricity	3.0	1.1	9.6	2.7	1.0
Electro-diagnostic apparatus, medical and radiological apparatus	0.4	0.1	17.6	0.3	0.1
Electrical and non-electrical household equipment	3.5	1.3	11.4	3.2	1.1
Semiconductors devices, ICs, microassemblies, transistors, valves, etc	96.5	36.2	3.2	93.5	33.3
Electrical machinery and apparatus	8.8	3.3	4.8	8.4	3.0

Compiled by Ministry of International Trade and Industry.

Exports of semiconductor devices to the People's Republic of China also increased due to the relocation of electronics manufacturing activities there. The rising incomes and living standards in the People's Republic of China created higher demand for electronics using semiconductors especially consumer electronics such as video games, digital music, flat screen displays and hand-held digitals.

Exports of electrical and non-electrical household equipment recorded growth of 11.4 per cent to RM3.5 billion in 2007, compared with RM3.2 billion in 2006. The growth was contributed by strong consumer demand for household electrical and non-electrical household equipment worldwide.

Electrical machinery and apparatus recorded growth of 4.8 per cent to RM8.4 billion, compared with RM8.4 billion in 2006. The increased demand for electrical apparatus and appliances, and parts due to growing demand in the automotive industry and the E&E sector.

Exports of office machines and automatic data processing machines and parts contracted by 9.2 per cent to RM93.1 billion in 2007, from RM102.6 billion in 2006. The decline was due to lower demand for parts for office machines and automatic data processing machines such as copier machines, fax machines and typewriters.

Exports of telecommunications and sound recording equipment also decreased by 14.1 per cent to RM45.1 billion in 2007, compared with RM52.7 billion in 2006. The decline was due to the convergence of technologies offering multiple functions and the growing presence of other suppliers to world market such as the Republic of Korea and the People's Republic of China.



Switches

Compliance: MS616 & IEC60669-1 Standards



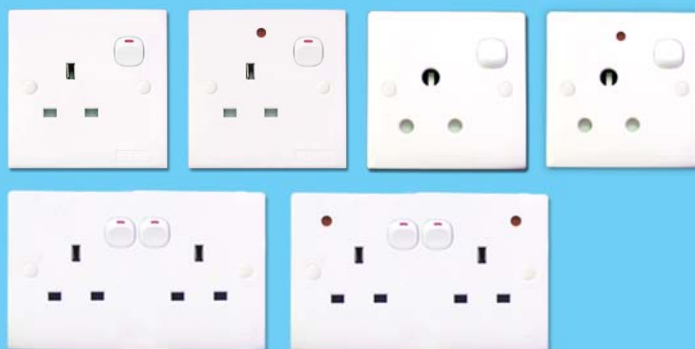
Industrial Switch Sockets

Compliance: MS589, SS145 Standards



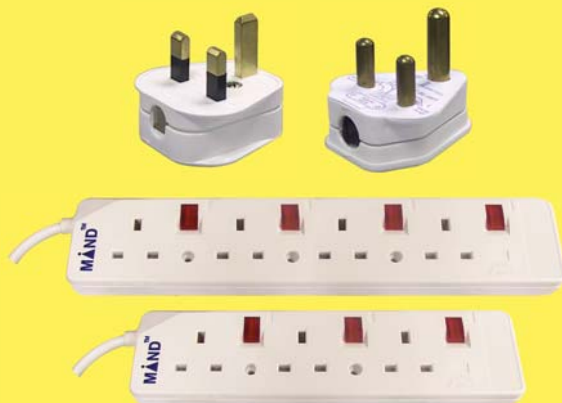
Switch Sockets

Compliance: MS589, MS1577 & SS145 Standards



Other Accessories

Compliance: MS589, SS145 Standards



Distributed by:

BORNEO TECHNICAL CO. (M) SDN. BHD. (24827-D)

No. 4 (Lot 89), Jalan U1/21A, Seksyen U1, Hicom Glenmarie Industrial Park, 40150 Shah Alam, Selangor Darul Ehsan.

Tel: 03-5569 1228 Fax: 03-5569 2233

BRANCHES:

A. Setar: 04-734 7596 Butterworth: 04-539 2189 Ipoh: 05-311 4252 J.B: 07-238 4781 Melaka: 06-337 3151 K.B: 09-771 3750

Ktn: 09-567 7533 K.K: 088-427 505 Kuching: 082-334 549

..... Continue Performance of E&E Industry

In terms of markets, the USA remained the largest export market for Malaysia's E&E exports in 2007. E&E exports to the USA contributed 26.4 per cent of total E&E exports, valued at RM70.4 billion. This was a decrease of 18 per cent, compared with RM85.9 billion in 2006.

Other major export destinations were Singapore accounting for 15.4 per cent of total E&E exports, the People's Republic of China (9.3 per cent), Hong Kong SAR (7.6 per cent) and Japan (6.1 per cent). In 2007, exports to the People's Republic of China increased by 29.9 per cent to RM24.9 billion, compared with RM19.1 billion in 2006. E&E exports to the People's Republic of China which registered an increase were semiconductor devices, ICs, transistors micro assemblies, valves and digital monolithic integrated units.

Table 7: Imports of Selected E&E Products

Product	2007			2006	
	RM (billion)	Share (%)	Change (%)	RM (billion)	Share (%)
Total Imports of E&E Products	203.9	100.0	-1.8	207.6	100.0
Office machines and automatic data processing machines and parts	37.1	18.2	-0.8	37.4	18.0
Office machines	0.4	0.2	10.5	0.3	0.2
Automatic data processing machines	10.2	5.0	-2.7	10.5	5.0
Parts for office machines and automatic data processing machines	26.6	13.0	-0.2	26.6	12.8
Telecommunications and sound equipment	16.8	8.3	0.6	16.7	8.0
Television receivers	0.6	0.3	-0.3	0.6	0.3
Radio broadcast receivers	0.3	0.1	-1.8	0.3	0.1
Sound recorders	1.2	0.6	-8.0	1.3	0.6
Telecommunications equipment and parts	14.8	7.3	1.9	14.5	7.0
Electrical machinery, apparatus and appliances and parts	149.9	73.5	-2.3	153.5	73.9
Electrical power machinery and parts	3.8	1.8	4.6	3.6	1.7
Electrical apparatus for electrical circuits and printed circuits	16.2	8.0	-8.2	17.7	8.5
Equipment for distributing electricity	2.4	1.2	6.1	2.2	1.1
Electro-diagnostic apparatus, medical and radiological apparatus	0.5	0.2	31.1	0.4	0.2
Electrical and non-electrical household equipment	1.2	0.6	7.5	1.2	0.6
Semiconductors devices, ICs, microassemblies, transistors, valves, etc	111.5	54.7	-2.8	114.7	55.3
Electrical machinery and apparatus	14.2	7.0	4.5	13.7	6.6

Compiled by Ministry of International Trade and Industry.

Imports

In 2007, E&E imports contracted by 1.8 per cent to RM203.9 billion, from RM207.6 billion in 2006, due to lower demand for components and parts and finished products. The major source of E&E imports in 2007, was the People's Republic of China which accounted for 17.8 per cent of total E&E imports, valued at RM36.2 billion, while imports from the USA accounted for 14 per cent or RM28.4 billion. Other sources of E&E imports were Japan (11.9 per cent), Singapore (10.6 per cent) and Taiwan (8.9 per cent).

Major E&E imports in 2007 were electrical machinery, apparatus and appliances and parts, accounting for 73.5 per cent of total E&E imports. These imports decreased by 2.3 per cent to RM149.9 billion in 2007, compared with RM153.5 billion in 2006.

Imports of office machines and automatic data processing machines and parts also decreased by 0.8 per cent to RM37.1 billion, from RM37.4 billion in 2006. The decline in E&E imports was due to lower demand for parts for office machines and automatic data processing machines such as copier machines and fax machines.

Imports of telecommunications and sound recording equipment increased by 0.6 per cent to RM16.8 billion in 2007, compared with RM16.7 billion in 2006.

Developments

As at December 2007, the Industrial Standard Committee on Electrotechnical (ISCE) has developed and adopted a total of 732 standards on E&E products. Of these, 57 standard are mandatory, while 675 standards are voluntary.

The Committee on Mandatory Industrial Standards (CMIS) led by MITI has proposed for the development of standards on cables and wires based on IEC (International Electrotechnical Committee) standards. These standards will be made mandatory once adopted as Malaysian Standards and will cover products such as cables and power cables, wires and wire harnesses, telephone cords and power cords.

Currently, the Energy Commission enforces mandatory standards on cables, wires and cords of 0.5mm² to 35mm². The standards are MS 140:1987 or BS 6500:1984, MS136:1987 or BS 6004:1984 and MS 136:1995 or BS 6004:1991.

A total of 30 tariff lines involving E&E products such as magnetic tapes and sound recording apparatus, wires and cables, photo copying machines and multifunctional devices, alarms and signalling apparatus are subject to import licence. These import licenses are maintained for security and monitoring purposes. In 2008, import licence requirements on eight tariff lines involving magnetic tapes and sound recording apparatus will be removed while imports licenses on 13 tariff lines involving cables and wires will be removed after the adoption of mandatory standards.

Malaysia has reduced import tariffs on E&E products under the various Free Trade Area (FTA) initiatives. The current CEPT rates involving 496 E&E tariff lines are shown in Table 8.

Table 8: CEPT Rates of 496 E&E tariff lines

CEPT Rates (%)	Total Tariff Lines	Total Tariff Lines (%)
0	236	47.6
2	4	0.8
5	256	51.6
Total	496	100

Import tariffs on all 496 E&E tariff lines will be eliminated in 2011 under the ASEAN-Korea FTA (AKFTA) on Trade in Goods came into effect on 1 June 2007. Malaysia's tariff reduction commitments under the AKFTA are shown in Table 9.

Table 9: ASEAN-KOREA FTA

Year	MJEP A Rates (%)	Total Tariff Lines	Total Tariff Lines (%)
2007	0 - 5	318	4.1
	8	3	0.6
	13	121	24.6
2008	0 - 5	343	69.2
	8	32	6.4
	10	121	24.2
2009	0 - 5	496	100
2010	0 - 5	496	100
2011	0	496	100
2012	0	496	100

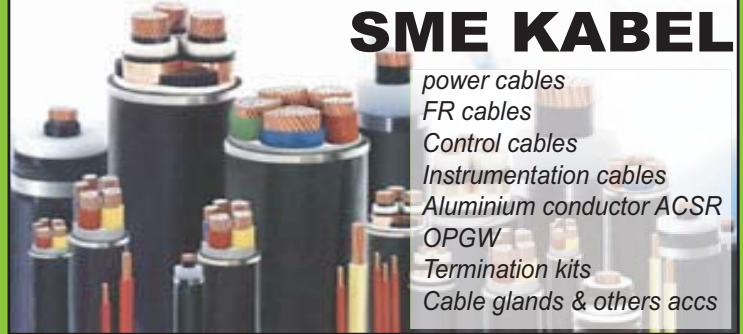
SIEMENS

contactor relay
motor breaker
fuses
simo Drive
PLC
limit switches
AC / DC motor



SME KABEL

power cables
FR cables
Control cables
Instrumentation cables
Aluminium conductor ACSR
OPGW
Termination kits
Cable glands & others accs



INGESCO

LIGHTNING SOLUTIONS



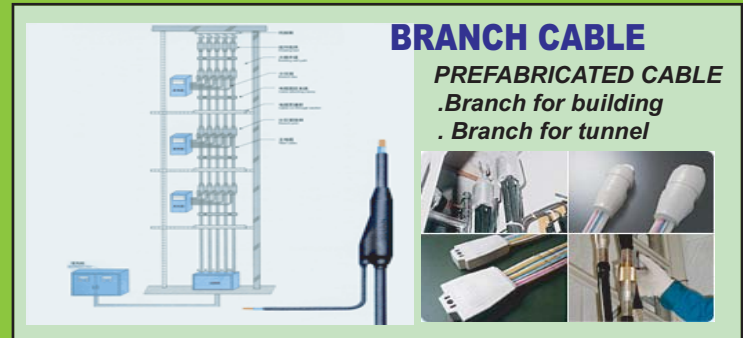
MENNEKES®

Industrial
plug & socket
IP67



BRANCH CABLE

PREFABRICATED CABLE
.Branch for building
. Branch for tunnel



World Leader for Pneumatic



Industrial sensor

proximity sensor
photoelectric sensor
color sensor
safety sensor



HENSEL



DESIGN SWITCH



SME ELECTRIC SDN BHD (111489-W)

HEAD OFFICE:
No:52, Jalan Puteri 5/5,
Bandar Puteri, Puchong,
47100, Selangor, Malaysia.
Tel: +603 8062 8211 Fax: +603 8062 8212
Email: smehq@sme-electric.com

www.sme-electric.com

PENANG BRANCH:
No:76, Jalan Perai Jaya 4,
Bandar Perai Jaya, 13700,
Seberang Prai, Penang.
Tel: +604 3909 941
Fax: +604 3909 943

..... Continue Performance of E&E Industry

Under the ASEAN-China FTA (ACFTA), tariffs on E&E will be eliminated by 2012. Malaysia's tariff reduction commitments under the ACFTA:

Table 10: ASEAN-CHINA FTA

Year	MJEPA Rates (%)	Total Tariff	Total Tariff Lines Lines (%)
2006	0 - 5	330	66.5
	10 - 5	69	13.9
	20	97	19.6
2007	0 - 5	322	64.9
	8	68	13.7
	12	106	2.4
2008	0 - 5	496	100
2009	0 - 5	496	100
2010	0 - 5	496	100
2011	0	496	100
2012	0	496	100

Under the Malaysia-Japan Economic Partnership Agreement (MJEPA), tariffs on 495 lines of E&E products will be reduced to zero per cent in 2016. In 2007, tariffs on 64.9 per cent or 322 tariff lines were at zero per cent. These are shown in Table 11.

Table 11: MJEPA

Year	MJEPA Rates (%)	Total Tariff Lines	Total Tariff Lines (%)
2006	0	321	64.7
	1 - 20	98	19.8
	21 - 50	77	15.5
2007	0	321	64.7
	1 - 20	109	22
	21 - 50	66	13.3
2008	0	322	64.9
	1 - 20	163	32.9
	21 - 50	11	2.2
2009	0	323	65
	1 - 20	172	34.7
	21 - 50	1	0.3
2010	0	323	65
	1 - 20	172	34.7
	21 - 50	1	0.3
2011	0	311	66.7
	1 - 20	164	33.1
		1	0.2
2012	0	331	66.7
	1 - 5	158	31.9
	10 - 15	6	1.2
	30.9	1	0.2
2013	0	489	98.6
	8.2	6	1.2
	28.2	1	0.2
2014	0	896	98.6
	5.5	6	1.2
	22.5	1	0.2
2015	0	489	98.6
	2.7	1	0.2
2016	0	495	99.8
	20	1	0.2

The Information Technology Agreement (ITA) concluded in 1996 is aimed at providing market access to its signatories and requires import duties to be eliminated for over 180 IT products. The basic principles of the ITA Agreement are:

- all products listed in the declaration must be covered for reduction/elimination;
- all products to be reduced to zero tariff level; and
- all other duties and charges to be bound at zero.

A total of 70 WTO members, representing 97 per cent of world trade in high-tech goods, have agreed to abide by the ITA. Concerns have arisen over the European Union (EU) decision to amend its tariff classification for some IT goods, and thereby no longer guaranteeing zero tariffs for those products. The EU maintains that it can impose tariffs on products that were not invented when the ITA was concluded.

As a result of reclassification by the EU, many ITA products are being reclassified into dutiable Customs categories. For example, digital camera is listed as part of ITA product, whilst video camera is not in the list. The EU has reclassified three ITA products effective 1st January 2007, as a result of which these products fall outside the scope of the ITA and are thus subject to import duty. These three products are :

- multifunction printers (6 per cent import duty) effective 1st January 2007;
- automatic data processing machines (6 per cent import duty), effective 1st January 2010; and
- flat panel displays (14 per cent import duty), effective 1st January 2010.

The EU is expected to reclassify at least two more ITA products, namely set top boxes (5 per cent import duty) and digital cameras (4.9 per cent import duty). The EU has indicated its willingness to review the scope of the ITA to include 'new IT products' under the existing mechanisms in the ITA. Malaysia is of the view that such a review should not be limited to products which are of commercial interest to only one country, but should be on a multilateral level.

Source: Malaysia International Trade & Industry Report 2007.



Jogathon 2008

Date : 16th November 2008 (Sunday)
Time : 7:00 am – 10:00 am
Venue : Bukit Aman Car Park,
Taman Tasik Perdana, Kuala Lumpur.

Registration: Contact TEEAM Secretariat
Tel : 603-9221 4417, 9221 2091
Fax : 603-9221 8212
E-mail : teeam@po.jaring.my / teeam@streamyx.com
Website : www.teeam.com

Mark
Your
Calendar



UNIVERSAL CABLE™

The Universal Choice

41

Years of Excellence





MEGA MAYANG M&E SDN. BHD.

(Co.No:160210-W)

We provide a one stop Mechanical & Electrical Solution in:-

- Electrical HT Services
- Electrical LV Services
- Extra Low Voltage Services
- Special Lighting Control
- Telephone and Networking Services
- Air Conditioning & Ventilation Services
- Fire Fighting & Protection Services
- Plumbing & Sanitary Services
- Cold and Hot Water Piping Services
- General Mechanical Services



Registration With Authorities:-

- * Suruhanjaya Tenaga- Class 'A'
- * CIDB G7 Categories 'B10','E04','E05','E06','E07','M02','M15'
- * PKK Kelas I Kepala VII
- * Kementerian Kewangan Malaysia
- * Tenaga Nasional Berhad
- * Licence Plumber For SYABAS & DBKL
- * Towards ISO 9001:2000



Address: No. 47, Jalan Rebena 3, Off Jalan Seruling 59, Taman Klang Jaya, 41200 Klang, Selangor Darul Ehsan.
Tel: +603-33238822 / 8866 / 8877, Fax: +603-33238832, Email: mme@megamayangsbd.com



You worry about
rising costs

we keep our
rates fixed

您担心成本上涨

我们保持固定利率

Business Instalment Loan EDGE™.

Low fixed rate. Collateral-free. / 固定低利率。无需抵押品。

When running a business, the last thing you should worry about is fluctuating interest rates. As your business partner, we not only keep our rates **fixed** but also **incredibly low** and **collateral-free**, helping you finance your business to achieve your goals faster and easier. / 当您忙碌的进行商业活动时，您最不想担忧的是波动的贷款利率。因此，作为您的商业伙伴，我们不仅保持**固定的超低利率**，而且**无需抵押品**，为您提供财务支援以协助您更快又容易的达成商业目标。

Low fixed rate from / 固定低利率每月从

0.625 %
per month / 起

Loan from / 融资额度从

RM50,000 to **RM250,000**

- No Collateral / 无需抵押品
- Easy to apply / 容易申请
- Fast Disbursement / 快速支出

Terms and conditions apply / 附带条件与规则

Call **1300 888 111** to ask for our Business Instalment Loan EDGE™ today! /

今天就拨 **1300 888 111** 申请我们的 Business Instalment Loan EDGE™!

| SME Banking |

| 中小企业理财 |

Business Instalment Loan EDGE™

Standard
Chartered 

www.standardchartered.com.my

PROTECTION

SECURITY

when it matters the most



Your preferred lightning & security solutions provider

Tokai Engineering (M) Sdn Bhd provides complete solutions for

- ❖ surge protection
- ❖ earthing & lightning protection system
- ❖ security engineering solutions
- ❖ CCTV & Perimeter Intrusion Detection System

When you engage our services, you can be sure of receiving the finest consultation and quality recommendations that is specifically tailored to your unique requirements. Our highly trained engineers will conduct a thorough site survey, leaving nothing to chance.

Tokai is in the business of protecting your homes, buildings, lives and businesses. Put your trust in the leader of the industry. Put your trust in **TOKAI**.



Quality range of surge protection devices to protect you from nature's raw fury!



Tokai's Earth & Lightning Protection series (E & LP).



Tokai's state-of-the-art CCTV & Perimeter Intrusion Detection System.



Security Engineering Solutions that will stop you in your tracks!



Tokai Engineering (M) Sdn Bhd

Lot 14, Jalan Astaka U8/82, Seksyen U8, Bukit Jelutong 40150 Shah Alam, Selangor Darul Ehsan.
Tel: 603-7845 2323 | Fax: 603-7845 5420 | Email: sales@tokai.com.my | www.tokai.com.my



Simplicity is a brighter light for an inspiring home.

Philips Tornado is 20% brighter than standard energy savers, allowing you to create a more inspiring ambiance at home. And being 40% smaller, it also fits into any future plans you might have. Now there's a brighter way to nurture an inspiring home.

www.lighting.philips.com.my

PHILIPS

sense and simplicity

Automatic Meter Reading Ready Meters



LZQJ-S
4-Quadrant-/Combi
Meter



LZQJ-E
Precision Meter 0.2
for 19" Module carrier



**Optical
Communication Adapter**
with Bluetooth interface
& Bluetooth USB Adapter



ITZ
Digital Tariff Meter



ITZR
Digital Tariff Meter
with drum registers



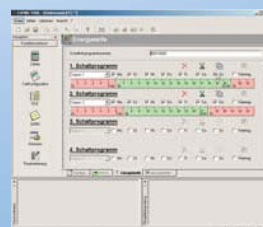
DMTZ
Digital Multi-Tariff
Meter



EMH-MOBILE
PDA + Read out software
+ Bluetooth-Adapter



DMZ
Digital Multi-Tariff Meter
(Single Phase)



EMH-COMBI MASTER 2000
Communication and
configuration program



SPARKLINE
Meter-Modem
for the analog-telephone
network or GSM-mobile
radio network

***Automatic Scheduled Meter
Information Download
Maximum Demand Control Data Aquisition
Automatic Remote Customer Billing System
Automatic Meter Tamper Detection
Customer Usage Behaviour Trending
Operational Cost Savings & Efficiency***



TNP

TEKNOPURI SDN. BHD. (No. Sykt. 261388-X)

NO. 8 & 8-1, JALAN 5/92-B, TAMAN KOBENA, CHERAS, 56100 KUALA LUMPUR, MALAYSIA.

TEL : 603-92812833, 92857460, 92857466, 92813594 FAX : 603-92838033, 9200 4584

E-MAIL : mantnp@po.jaring.my