TORICO
株式会社トリコ

HYPERMIZER™

TORICO SDN BHD

20-1, JLN PPM13,
PLAZA PANDAN MALIM,
BUSINESS PARK, BALAI
PANJIANG 75250 MELAKA,
MALAYSIA
Cell :018-9412788/018-9624588
TEL: 06-240 2867
Online shop:www.toricomall.com
Website :www.torico-ltd.co.jp

Optimizing Energy Conservation and Efficiency

SIRIM

Suruhanjaya Tenaga
Energy Commission

Made In Malaysia

SGS

What is HYPERMIZER™ ?

The Hypermizer™ is fundamentally different from commercial energy saving device. Our patented load detection system continually monitors electrical load at 1,380 cycles per second, and ensures that optimal power is being supplied at all times.

Our goal is to provide our customers with cost effective and leading solutions to optimize energy conservation and the load efficiency.

Value Proposition

- Consistently deliver 15% - 30% Real Power consumption (kilo - watt) saving and lowering your electricity bills.
- Reduce Reactive power & Apparent power by 30% - 90%.
- Improve load Efficiency & Power Factor by 5% - 15%.
- Stabilize & optimize voltage & current supplied to loads. Therefore prevent- ing transient activities like electric sags, spikes and surges.
- Reduce harmonics and wave-form distortions, thus filter out frequency noises.
- Reduce heat generated within the loads, thus reducing the workload of cooling system.
- Extend lifespan of electrical equip- ment as well as reduce repair and maintenance cost.
- Simple installation and hassle free maintenance.
- Long lifespan with minimum 10 years.
- Strong return on investment.

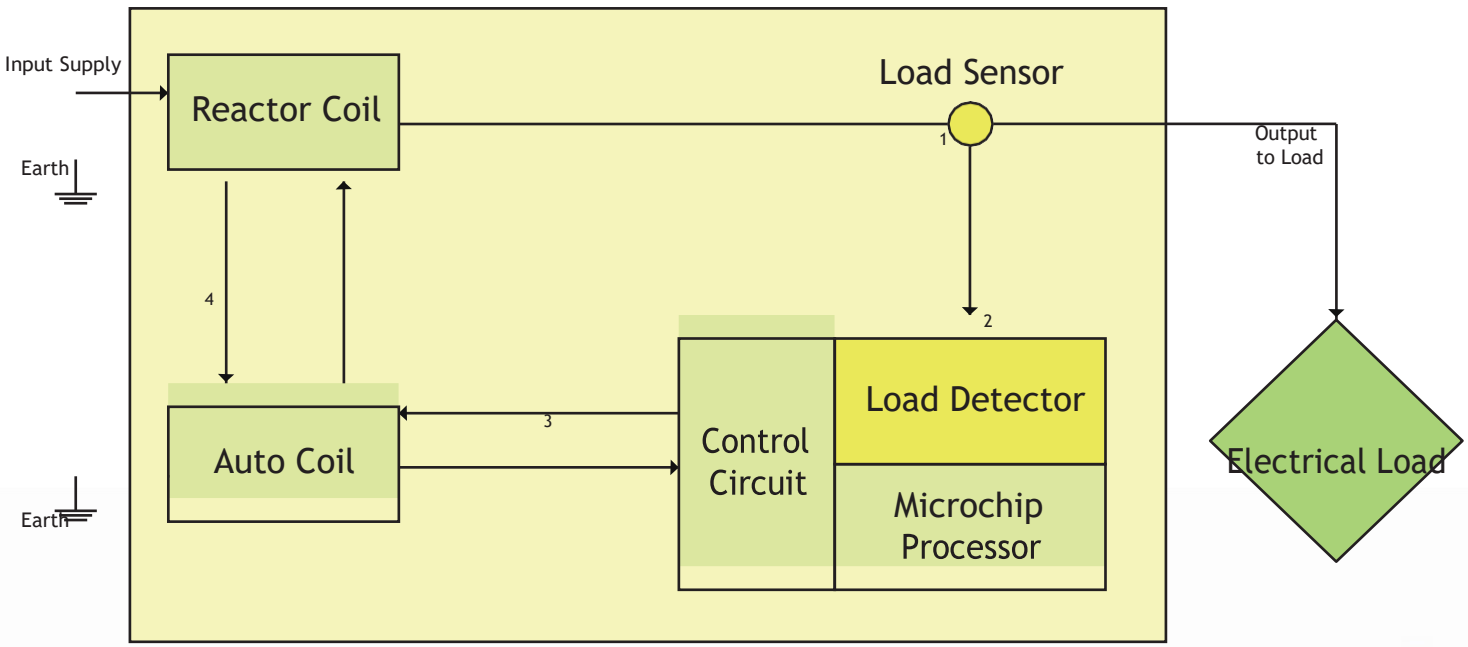
HYPERMIZER-G

Energy optimiser for lighting & Mixed loads

The Hypermizer-G is a specially desiged Automatic Power Controller that targets lightings and mixed loads.

The Load Sensor constantly monitors the supply, usage and wastage power and sends the data through our proprietary load detection mechanism. Our proprietary software then directs the 2 specially designed coils to trim wastages, reduce consumption and improve effi- ciency.

How Hypermizer-G Works



1. The Load Sensor monitors the electrical loaf for various parameters at 300 cycles per second.

3. The Auto Coil stabilizes and improves the voltage and trims redundant excesses, in line with the current.

2. The Load Detector sends the data in digital signals to the Micro- chip Processor. Our algorithmic software then directs the control circuit to adjust the auto and reac- tor coil according to the type of electrical load.

4. The Reactor Coil improves the power factor & efficiency, balances the inter-phase angle, trims current & harmonics and filters frequency noises.

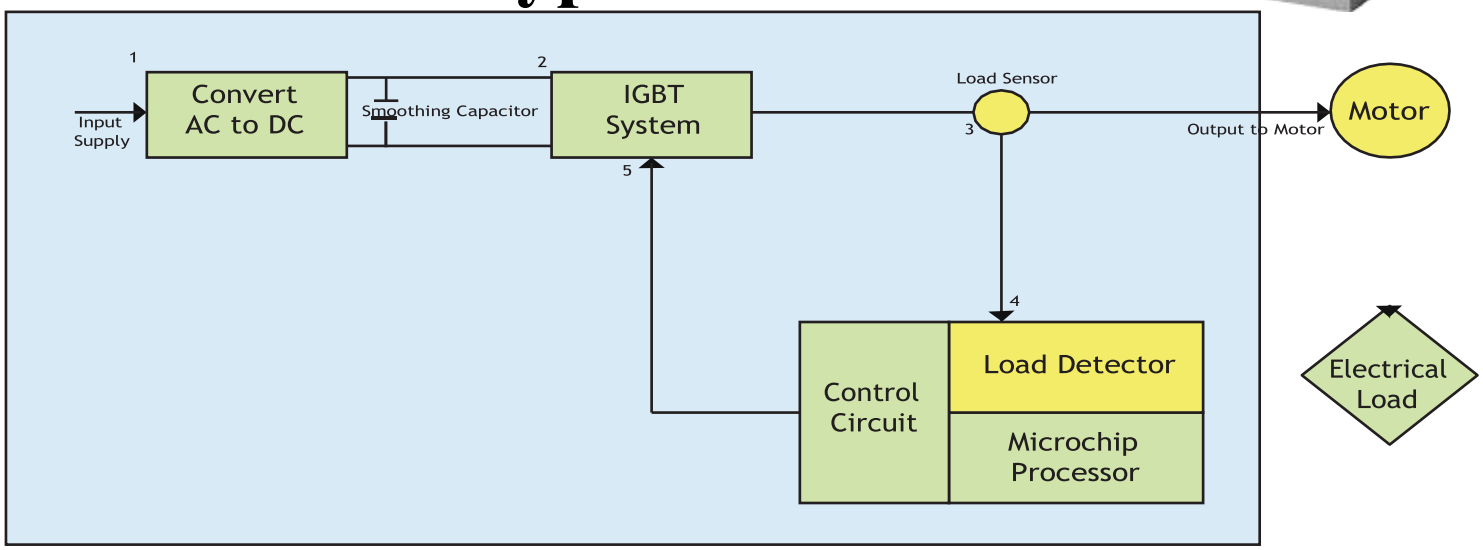
HYPERMIZER-M

Energy optimizer for Electric motors (Induction motors)

The Hypermizer-M is a specially designed Automat- ic Power Controller (based on Isolated Gate Bipolar Transaction, IGBT) that works on a similar philosophy as the Hypermizer-G, but is targeted at 3-Phase AC induction motor-driven loads such as AHUs, water pumps, cooling tower motors, suction fans, exhaust fans as well as hydraulic pumps.

The Hypermizer-M consists of 2 main components namely an Isolated Gate Bipolar Transaction (IGBT) system as well as our proprietary load detection system. Like the Hypermizer, the load detection mechanism is connected to a feedback system that constantly monitors the supply, usage and wastage power.

How Hypermizer-M Works



1. Alternating Current (AC) is converted to Direct Current (DC).
2. The DC wave form is converted into pulse wave modulation.
3. The Load Sensor monitors the electrical load for various parameters at 1,380 cycles per second.
4. The Load Detector sends the data in digital signals to the Microchip Processor. Our algorithmic software then directs the control circuit to adjust the Isolated Gate Bipolar Transistor (IGBT).
5. The IGBT system improve the voltage and trims redundant excesses in line with current. The IGBT system will also improve the power factor & efficiency and balance the inter-phase angle, trim current & harmonics and filter frequency noise.

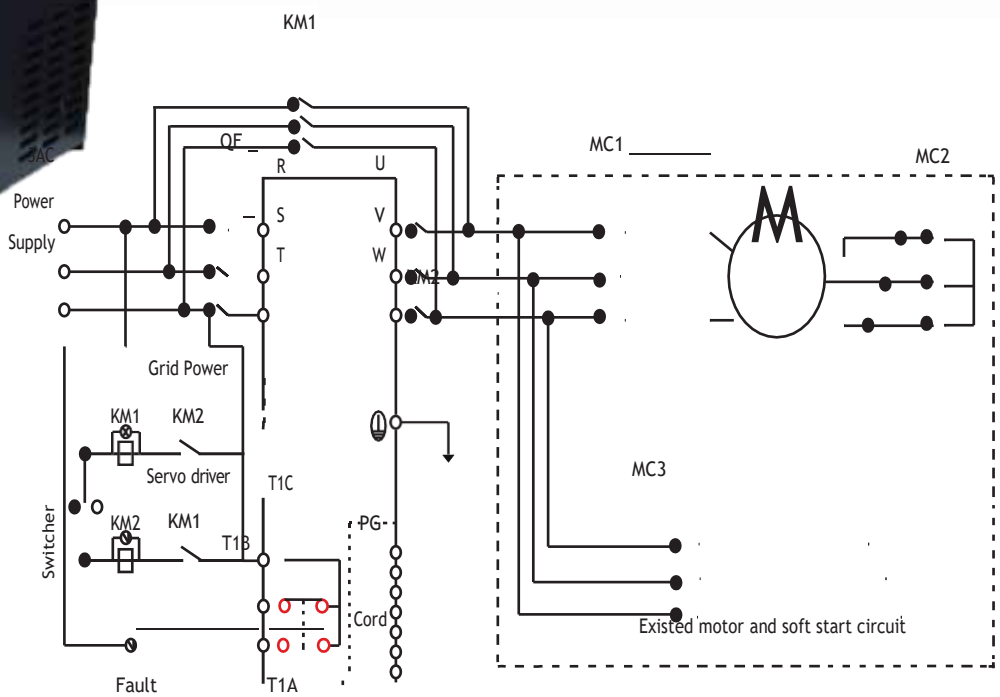
Working together, the IGBT system and the load detection system will supply just the right amount of voltage and current to the loads to function optimal, thereby saving Real Power consumption on the installed motor. On average, the Hypermizer-M has been proven to save 15% - 30% of Real Power for motors.

HYPERMOLD

Control Moulding machine motor to run optimum and save Electrical energy from 10% to 40%.

The traditional injection moulding machine have the disadvantage of low efficiency, high energy consump- tion and low product qualified rate. Hypermold integrates high perfor- mance Asynchronous Servo System, that takes pressure and flow signals as the control object, to adjust motor output power at the optimized status.

HYPERMOLD Diagram



HYPERMOLD Asynchronous Servo System

Power Range	3AC	380~440V + 15%	7.5 - 110kW
Control Mode	V/F, sensorless vector control, close-loop vector control, torque control		
Overload Capacity	150% 60S, 180% 10s		
Energy Saving	10% ~ 40%		
Power Supply	Bypass circuit design, uninterruptable of production		
Applications	Injection molding machine, hosting equipment, escalculator, central air condition and other applications which need bypass circuit.		

Hypermizer Application

Commercial Sector:
- Hotels
- Private Hospitals
- Office & Shopping Complexes
- Airports
- Banks
- Restaurants
- Auto Malls / Showrooms
- Supermarkets & Convenience Stores
- Entertainment Centres
- Condominiums & Bungalows
- Car parks

Public Sector:
- Street Lightings
- Parks
- Schools
- Libraries
- 24/7 Organisations (Border Checkpoints, Police/Fire/Civil Defence Stations, Public Hospitals)

Industrial Sector:
- Industries / Factories
- Warehouses
- Shipyards & Ports

Focus : Power consumer/application operating at >= 10 hours/day and >= 300 days/annum [ROI and Payback Period will be attractive].

Hypermizer Existing Customers

SINGAPORE
- Tang Plaza
- Capitol Building
- Stamford House
- Singapore Technologies Logistics
- Changi International Airport Svcs
- Make-Well Clinic
- Singapore Turf Club
- Stamford Tyres
- Parkview Square Bungalow
- Hong Leong Bungalow
- Fuji Xerox
- Combustor Airmotive Svcs
- Odeon Towers – UOL
- United Square – UOL HQ
- PUB Seletar WRP

MALAYSIA
- Nagoya Moulding (Malaysia)
- Matsushita (Malaysia)
- Mitsubishi (Malaysia)
- Flextronics (Malaysia)
- Univ. Technology Mara Malaysia
- Panasonic Technic (Malaysia)
- Nemic Lamda (Malaysia)
- MAB Penang

APAC REGION
- Nadi International Airport (Fiji)
- Warehouse Group (NZ)
- FreshChoice Group (NZ)

Typical Savings on Various Loads

Average savings with Hypermizer-M : 15% - 30%

Excellent for :

- AHU motors : 15% - 30%
- Chiller & Condenser water pump motors : 15% - 25%
- Freshwater pump motors : 15% - 25%
- Blower/Suction/Exhaust/Ventilation Fans : 15% - 30%
- Any other 3-Phase AC Induction Motors : 15% - 30%

Average savings with Hypermold : 10% - 40%

Moulding Machines : 10% - 40%
Stamping Machines : 10% - 18%

Average savings with Hypermizer-G : 15% - 30%

Lights

- Fluorescent Lamps : 22% - 29%
- Street Lightings : 25% - 32%
- High-Bay Lamps : 18% - 25%
- Energy saving lamps : 18% - 25%
- Other lamps : 18% - 25%

Air Conditioning System

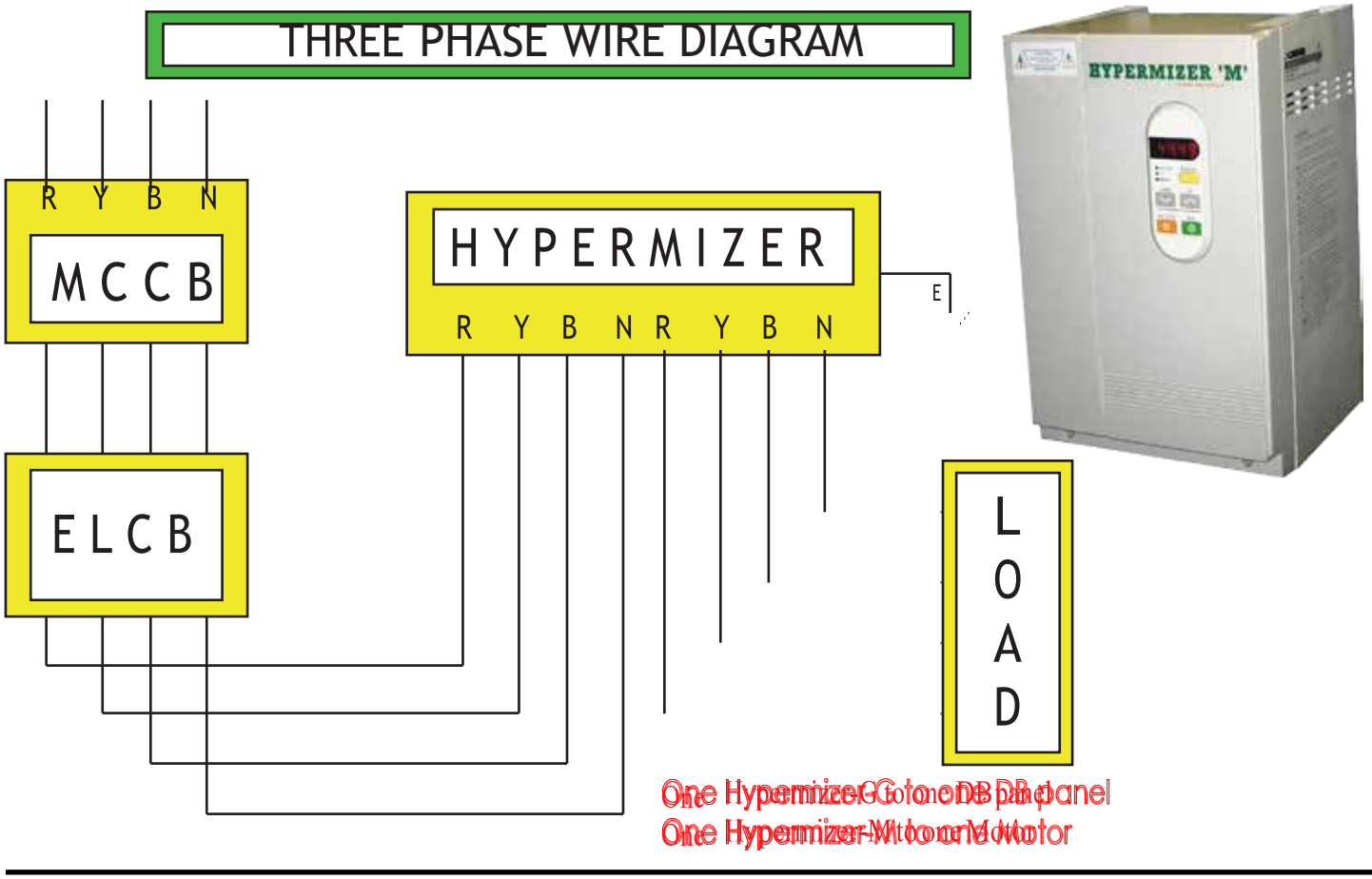
- Air-con using R22 gas : 5% - 10%
- Air-con using CFC free gas (e.g. R401) : 10% - 15%

Mixed Loads (in house/office/restaurant/clinic etc) : 10% - 25% Heaters : 10% - 15%






Wire Connection Diagram



HYPERMIZE R™ Field Test Results

Location	Savings
Singapore Tuas Checkpoint	21.73%
IKEA Singapore	20.11%
HP Singapore	19.50%
SUNTEC City Singapore	22.08%
Changi International Airport	32.19%
Fullerton Hotel Singapore	22.14%
Fuji Xerox Singapore	17.00%
Singapore Press Holdings	28.40%
Fiji Nadi International Airport	35.97%

Case Study : Changi Airport

Proven Savings at a Changi Int'l Airport Services Warehouse in Year 2002

The tested DB consumes 16.96kW/hr. Total

cost from the DB
= 16.96 kW/hr X 24 hours operation X 365 days a year X $0.1464 per kilowatts - hour tariff
= S$21,750.59 per year

Total annual electricity cost without HYPERMIZER™	S$21,750.59
Total annual electricity cost with HYPERMIZER™ (Based on 32.19% in electricity savings)	S$14,749.08
Total annual savings (for 1 DB)	S$7,001.51
Investment Cost of Each HYPERMIZER™	S$9,450
Payback period (+/– 1 month)	1 year 4 months
The CIAS logistics has about 50 DBs in its operations. Potential Nett Annual Savings CIAS could enjoy with HYPERMIZER™.	S$350,075 p.a.
HYPERMIZER™ lifespan is 10 years. Potential TOTAL NETT SAVINGS that CIAS can enjoy (after payback period) for the next 8 years 8 months	S$3,034,100

HYPERMIZER™ Installation & Success Stories

Sentosa Resort Singapore

Singapore Technologies (ST)

Tangs Plaza Singapore

Penang Airport

Product Warranties & Supports

☑ **Standard Manufacturer's Warranty :-**

- **Hypermizer-G : 1 year**
- **Hypermizer-M : 1 year**
- **Hypermold : 1 year**

☑ **Order Fulfillment**

- Manufacturing plant in Malaysia
- Delivery Lead Time : 8 - 10 weeks from order

How to Conduct Energy Saving Audit?

We are helping to carry the Total Electrical Saving Audit to our clients. Below steps are our standard procedure to analyze how much electricity could save by Hypermizer™.

1. List of Processing Machines or Motor are required to estimate the potential of energy saving.

2. On Site Survey is required for investigation on the power consumption & finalize the proposal of the Total Energy Saving.

3. Electricity Bills for last three (3) months are required for calculating the electrical con- sumption efficiency.

Certifications & Approvals

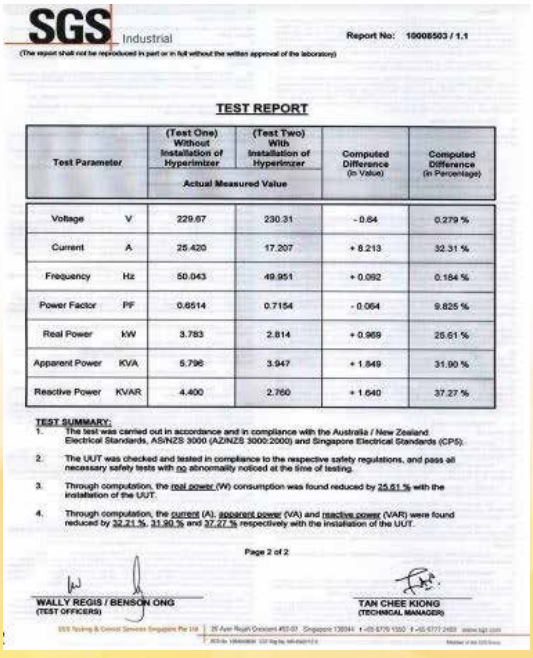
Tested and approved by the following authorities:

- SGS Group (on safety, performance & harmonics for Singapore, Australia, New Zealand, Fiji & Thailand)
- Bureau Veritas (Australia, New Zealand & Fiji)
- PSB Corporation Pte Ltd (Singapore)
- Energy Market Authority & Power Supply Ltd (Singapore)
- Jabatan Bekalan Electrik (Malaysia)
- SIRIM Berhad (Malaysia)
- FEA (Fiji Electrical Authority)

We are currently working with SGS Belgium for :

- UL certification (for USA)
- TUV, CE & CB markings (for all 16 countries in EU)

SGS Test Reports



SGS Industrial

Report No: 10008503 / 1.1

(The report shall not be reproduced in part or in full without the written approval of the laboratory)

TEST REPORT

Test Parameter		(Test One) Without Installation of Hyperimizer	(Test Two) With Installation of Hyperimizer	Computed Difference (in Value)	Computed Difference (in Percentage)
		Actual Measured Value			
Voltage	V	229.67	230.31	- 0.64	0.279 %
Current	A	25.420	17.207	+ 8.213	32.31 %
Frequency	Hz	50.043	49.951	+ 0.092	0.184 %
Power Factor	PF	0.6514	0.7154	- 0.064	9.825 %
Real Power	kW	3.783	2.814	+ 0.969	25.61 %
Apparent Power	KVA	5.796	3.947	+ 1.849	31.90 %
Reactive Power	KVAR	4.400	2.760	+ 1.640	37.27 %

TEST SUMMARY:

1. The test was carried out in accordance and in compliance with the Australia / New Zealand Electrical Standards, AS/NZS 3000 (AZ/NZS 3000:2000) and Singapore Electrical Standards (CP5).
2. The UUT was checked and tested in compliance to the respective safety regulations, and pass all necessary safety tests with no abnormality noticed at the time of testing.
3. Through computation, the real power (W) consumption was found reduced by 25.61 % with the installation of the UUT.
4. Through computation, the current (A), apparent power (VA) and reactive power (VAR) were found reduced by 32.21 %, 31.90 % and 37.27 % respectively with the installation of the UUT.

Page 2 of 2

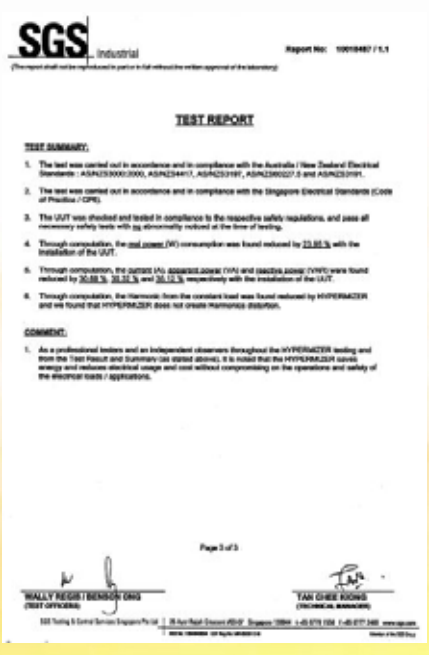
WALLY REGIS / BENSON ONG (TEST OFFICERS)

TAN CHEE KIONG (TECHNICAL MANAGER)

SGS Industrial

TEST REPORT

Page 2 of 3



SGS Industrial

TEST REPORT

TEST SUMMARY:

1. The test was carried out in accordance and in compliance with the Australia / New Zealand Electrical Standards : AS/NZS3000:2000, AS/NZS4417, AS/NZS3897, AS/NZS60227.3 and AS/NZS3191.
2. The test was carried out in accordance and in compliance with the Singapore Electrical Standards (Code of Practice / CP5).
3. The UUT was checked and tested in compliance to the respective safety regulations, and pass all necessary safety tests with no abnormality noticed at the time of testing.
4. Through computation, the real power (W) consumption was found reduced by 23.85 % with the installation of the UUT.
5. Through computation, the current (A), apparent power (VA) and reactive power (VAR) were found reduced by 30.88 %, 30.24 % and 36.19 % respectively with the installation of the UUT.
6. Through computation, the Harmonic from the constant load was found reduced by HYPERMIZER and we found that HYPERMIZER does not create Harmonics distortion.

COMMENT:

1. As a professional testers and an independent observers throughout the HYPERMIZER testing and from the Test Result and Summary (as stated above), it is noted that the HYPERMIZER saves energy and reduces electrical usage and cost without compromising on the operations and safety of the electrical loads / applications.

Page 3 of 3

WALLY REGIS / BENSON ONG (TEST OFFICERS)

TAN CHEE KIONG (TECHNICAL MANAGER)

SGS Test Results

Test Parameter	Test Without Hypermizer	Test With Hypermizer	Computed Difference (in Value)	Computed Difference (in percentage)
	Actual Measurement Value			
Voltage	231.1	232.6	+ 1.5	0.649%
Current	25.39	17.60	- 7.79	30.68%
Frequency	49.97	49.97	+ 0.00	0.000%
Power Factor	0.648	0.706	+ 0.058	8.951%
Real Power	3.80	2.89	- 0.91	23.95%
Apparent Power	5.87	4.09	- 1.78	30.32%
Reactive Power	4.47	2.90	- 1.57	35.12%
1st Current Harmonic	25.14	17.37	- 7.77	30.91%
3rd Current Harmonic	2.65	2.18	- 0.47	17.74%
5th Current Harmonic	0.26	0.11	- 0.15	57.70%
7th Current Harmonic	0.86	0.53	- 0.33	38.37%
9th Current Harmonic	0.61	0.41	- 0.20	32.79%
11th Current Harmonic	0.36	0.24	- 0.12	33.33%

Award-Winning

New Zealand National Fieldays Society recognized the HYPERMIZER™ with 2 Achievement Awards at the "Fieldays 2005" event in Hamilton-NZ on 17-Jun-05 :

- Energy Innovations Award
- Equipment Award

"Fieldays" is a prestigious and among the largest agricultural events in the world!

In the News

- Fiji National TV Special News Report on 20-Aug-2004 after HYPERMIZER Launch in Fiji.

- Electrical Technology – popularly tracked journal published by the New Zealand Electrical Institute
  - full page article on HYPERMIZER™ (titled "The Hypermizer Has Landed) in the June/July 2005 issue.

- DEMM (Digest of Equipment & Materials Management) NZ's industrial magazine news feature article in July 2005 issue.

- Fiji Times Online news report on 23-Aug-2005.

- Business Times (Singapore) news feature article on 04-Nov-2005.

- Straits Times (Singapore) news article on Energy Audit Government subsidy, with mention of 3T Holdings and HYPERMIZER™ on 14-Jun-06.

HYPERMIZER™

- Real Power Saving (15% - 30%)
- Improve Load Efficiency
- Improve Power Factor
- Reduce Reactive & Apparent Power
- Money Saving & Strong ROI
- Simple Maintenance & Hassle Free Installation
- Helps Client Towards a Green Environment

HYPERMIZER™ is a unique, effective & long-term energy-saving product that helps to optimize energy conservation & efficiency.

Improves profitability without compromising safety, quality, comfort & convenience by triming electricity consumption by 10% - 30%.

In line with ISO 14000, that supports responsible care towards greener friendlier environment.

Technology is certified, patented & award-winning.

Targeted at industrial, commercial & public sectors.

Authorized Dealer

BUREAU VERITAS

SIRIM

SGS

PSB Corporation

TORICO SDN BHD

20-1, JLN PPM13 ,

Plaza Pandan Malim, Business Park,

Balai Panjang,75250 Melaka. Malaysia

Cell :0189412788/018-9624588

TEL: 06-240 2867 Online shop: www.toricomall.com

Website :www.torico-ltd.co.jp