

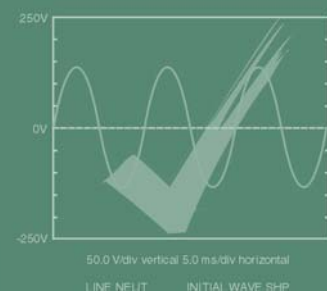
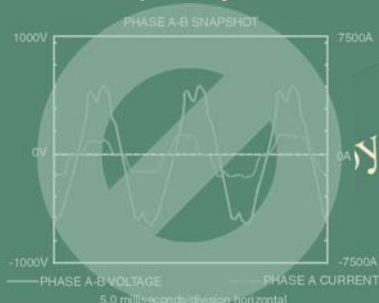
“

Put points across excellently - due to personal experience.

Marius Joubert

**DISCOUNT
PROGRAM PRICING**

Details Page 4



PRACTICAL POWER SYSTEM HARMONICS, EARTHING AND POWER QUALITY - PROBLEMS AND SOLUTIONS

LONDON
17 & 18 September 2007
GLASGOW
20 & 21 September 2007
BIRMINGHAM
24 & 25 September 2007

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BIRD
BOOKING
OFFER**

Book by 31 August 2007 and you will receive a FREE Troubleshooting, Maintenance & Protection of AC Electrical Motors and Drives manual valued at £69.95



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UNITED KINGDOM • UNITED STATES

PRESENTED BY:

Marc Dekenah

AMIET Dip EE Fault Investigation and Analysis Specialist

WHAT YOU WILL LEARN:

- Develop a sound working knowledge of earthing and harmonics
- Do a step-by-step site analysis on power quality and harmonics
- Gain practical knowledge on surge and transient protection
- Design electrical and electronic systems correctly by applying knowledge of harmonics and earthing principles
- Distinguish between harmonics and transients and how to minimise them
- Troubleshoot electrical and electronic systems for power quality and harmonic problems
- Isolate and rectify power quality and harmonic problems
- Network with your peers on solving these problems

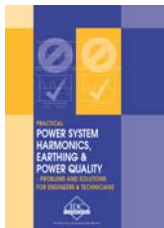
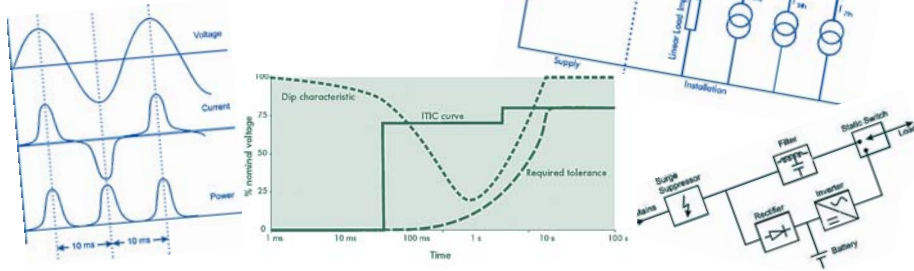
Register **NOW** on **(020) 8335 4014**

PRACTICAL POWER SYSTEM HARMONICS, EARTHING

An intensive, PRACTICAL, two-day workshop

3 Practical Sessions

- Demonstration of power quality and harmonics problems
- Analysis of waveforms to identify problems
- Simple harmonic, power quality and earthing calculations



Free Reference Manual

(Valued at £69.95)

Our delegates don't receive photocopied notes!

You will receive a comprehensive fully illustrated reference manual filled with hundreds of pages of tables, charts, figures and handy hints.

“

Very informative and awoke my brain due to having done this many many years ago.

Kevin Cronin

Base level workshop on a subject I need to spend more time on. I now know what I need to know better.

Andy Lefley

The workshop was excellent and valuable to my line of work.

David Selems

Instructor was very approachable and had great knowledge on the subject. Good communicator.

Paddy McLoone

”

Presented by

Marc Dekenah

AMIET Dip EE
Fault Investigation
and Analysis
Specialist



Marc's 25 year career in electronics included 15 years as an Electronics & Systems Designer. Of particular note are his designs of backbones for operational control rooms for the emergency services encompassing audio, radio and digital control. These required clean, noise free, uninterrupted power with superb earthing systems and transient protection to remain operational during all times, despite the daily onslaught of an array of network disturbances.

Marc is well known as a power quality specialist by a number of blue chip companies throughout the UK, especially for his 'wider view' approach that encompasses harmonics, lightning protection, AC power control and EMC compliance.

Marc has published numerous articles on this subject and has spoken at many relevant conferences. You will most certainly benefit from his experience in earthing when delivered by this passionate and experienced instructor.

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AND POWER QUALITY - PROBLEMS AND SOLUTIONS

The Workshop

This interactive, practical workshop reviews the fundamentals of power quality, EMC and the procedures for design and installation for earthing and neutral systems. You will cover the common misconceptions, problems and solutions of noise and harmonics in power systems, as well as surge and transient protection. The workshop covers power system capacitive/inductive relationships and conducting a site analysis with a step-by-step set of instructions on harmonic site analysis procedures. You will participate in a practical discussion on power conditioning and realistic case studies covering a wide variety of industries ranging from manufacturing and process control to telecommunications.

Pre-requisites

Some working knowledge of basic electrical engineering principles is required, although there will be a basic revision of the fundamentals. Real-life experience with earthing and harmonics problems will enable the workshop to be placed in context. If you bring along your power quality and harmonic problems to the workshop it will be beneficial to solve them in a group setting.

Who Should Attend

- Instrumentation and Control Engineers
- Consulting Engineers
- Electrical Engineers
- Project Engineers
- Maintenance Engineers
- Power System Protection and Control Engineers
- Building Service Designers
- Data Systems Planners and Managers
- Electrical and Instrumentation Technicians

The Program

DAY ONE

INTRODUCTION

- What is power quality and EMC?
- IEC/IEEE and FIPS standards
- Interfacing with electrical utilities

RECOMMENDED DESIGN AND INSTALLATION PRACTICE

- Wiring, earthing and distribution systems
- Dedicated and derived neutral systems
- Earthing and bonding equipment

EARTHING AND NOISE CONTROL

- Site auditing for noise control
- Misconceptions in performance earthing
- "Single Point" vs "Multi Point" techniques
- Noise and the zero signal reference grid

SURGE AND TRANSIENT PROTECTION

- Lightning phenomena
- Power system faults and switching surges
- Mitigation techniques - case study

HARMONICS IN POWER SYSTEMS

- Principles of harmonic analysis
- Harmonic phase angle and sequence
- Harmonic currents and voltages
- IEEE Std 519 on harmonics
- Control of harmonic pollution
- Magnetic saturation and nonlinear loads
- Converters and inverters
- Theoretical and practical values of harmonic currents
- Effects on electromagnetic machinery and capacitors
- Effect on conductors and neutral overloading
- Effects on communication systems
- Harmonic distortion by synthesis
- Fourier transforms (FFT and DFTs)
- Integrated control and low power factor
- Harmonic filter design
- Protection of capacitor banks
- Inverters design for low harmonic output

DAY TWO

POWER SYSTEM CAPACITIVE/INDUCTIVE RELATIONSHIPS

- Displacement and distortion power factor
- Reactive power relationships
- Power factor efficiencies

CONDUCTING A SITE ANALYSIS

- Sources of power quality problems
- Site survey procedures
- Monitoring and analysis instrumentation

HARMONIC SITE ANALYSIS PROCEDURES

- Harmonic analysers
- Measurement - voltage or current?
- Measurement fundamentals and true RMS/predictive analysis
- Harmonic order and sequences and resonance
- Voltage and current waveforms (signatures)
- Harmonic interaction auditing

POWER CONDITIONING

- Power conditioners
- Uninterruptible power systems
- Power quality source alternatives
- Power disturbance cost comparisons

CASE STUDIES

- Checklist for powering, earthing and communications
- Commercial buildings
- Manufacturing and process control
- Medical facilities
- Computers and data processing environments
- Telecommunications

SUMMARY, OPEN FORUM AND CLOSING

The fee for each workshop covers all materials including workshop manual, lunches and refreshments

About IDC Technologies

With a portfolio of over 120 workshops specialising in the fields of industrial data communications, telecommunications, automation and control we have trained over 100,000 engineers, scientists and technicians over the last 14 years.

We have an enthusiastic team of professionals in offices conveniently located around the world, who are committed to providing the highest quality of engineering and technical training.

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For more information or a **FREE** detailed proposal contact:

Kevin Baker on (020) 8335 4014 or e-mail: training@idc-online.com

POWER SYSTEM HARMONICS, EARTHING AND POWER QUALITY - PROBLEMS AND SOLUTIONS

DELEGATE DETAILS

Contact: _____		Company Name: _____	
Company Address: _____			
City: _____	County: _____	Post Code: _____	
Phone: _____	Fax: _____	Email: _____	
Attendees:	Mr/Ms: _____	Job Title: _____	
	Mr/Ms: _____	Job Title: _____	
	Mr/Ms: _____	Job Title: _____	
	Mr/Ms: _____	Job Title: _____	

Should you have more people interested in attending this workshop, please contact **Jeff Futcher** on (020) 8335 4014 or e-mail: register@idc-online.com

Areas of Interest: (please tick)

- | | | | | |
|--|---|---|---|--|
| <input type="checkbox"/> Instrumentation, Automation & Process Control | <input type="checkbox"/> Data Communications & Networking | <input type="checkbox"/> Information Technology | <input type="checkbox"/> Electronics | <input type="checkbox"/> Civil Engineering |
| <input type="checkbox"/> Project & Financial Management | <input type="checkbox"/> Mechanical Engineering | <input type="checkbox"/> Electrical | <input type="checkbox"/> Chemical Engineering | |

WORKSHOP DETAILS

- ☐ **London** - 17 & 18 September 2007
The Ramada Ealing
- ☐ **Glasgow** - 20 & 21 September 2007
Campanile Hotel, Glasgow
- ☐ **Birmingham** - 24 & 25 September 2007
Campanile Hotel, Birmingham

DISCOUNT PROGRAM PRICING

SAVE £655

**REGISTER 3 PARTICIPANTS AT FULL PRICE
AND
THE 4TH REGISTRATION IS FREE!**

PAYMENT DETAILS

Note: Prices are EXCLUSIVE of VAT

- ☐ Workshop Fee £655 x _____ delegates = £ _____
(Don't forget that the 4th participant is FREE)
- ☐ Early Bird Booking Offer (if booking on or before 31 August 2007)
- + 17.5% VAT = £ _____
- TOTAL = £ _____**

I wish to pay by ☐ Cheque, made payable to IDC Technologies

☐ Company Order Number: _____

Please charge my ☐ Mastercard ☐ Visa Expiry Date: ____/____

Cardholder's Name: _____

Cardholder's Signature _____

On the reverse of your card, above the signature, is a 7 digit security number. In order to authorise your card transaction, we require the last 3 digits:

If the Cardholder's address is not the same as shown above please tick this box: ☐

Please Note: Full payment is required prior to the commencement of the workshop.

REGISTER NOW:

Phone:
(020) 8335 4014

Fax:
(020) 8335 4120

Mail:
IDC Technologies, Suite 18,
Fitzroy House, Lynwood Drive,
Worcester Park, Surrey, KT4 7AT

E-mail:
idc@idc-online.com

Web Site:
www.idc-online.com

WORKSHOP DETAILS

- Workshops start at 8:30am and finish at 5:00pm daily.
- Registration is from 8:00am on the first day.
- The workshop fees are per delegate and include a reference manual, handouts, lunches and all refreshments.
- Full payment is required prior to the commencement of the workshop.

EARLY BIRD BOOKING OFFER

Please note that the Early Bird Booking Offer is only available to those registrations received by 31 August 2007 and paid prior to the commencement of the workshop.

CANCELLATION

A fee of 20% will apply for written cancellations received 7-14 days prior to the commencement of the workshop.

Cancellations received less than 7 days prior to the workshop are not refundable however substitutes are welcome.

CONFIRMATION

Full confirmation details and workshop instructions will be sent to you upon receipt of booking.

PLEASE NOTE

Venues to be confirmed upon registration. Instructors may change without notice.

IDC Technologies has no affiliation with suppliers or manufacturers and therefore presents a completely unbiased factual view of the industry.

PRIVACY INFORMATION

If your address details are incorrect, or you wish to remove your name from our mailing list, please contact us by phone, fax or e-mail.

At times we make use of lists that cannot be cross-checked against our own database and you may receive a duplicate. If so, please pass this on to an interested colleague.

HANDS-ON APPROACH TO TRAINING

IDC Technologies' instructors understand the value of combining theoretical learning with practical application. All IDC Technologies workshops include practical, hands-on sessions where the delegates are given the opportunity to apply in practice the theory they have learnt.

CONTINUING PROFESSIONAL DEVELOPMENT (CPD)

This program is designed to meet your continuing professional development requirements. A certificate documenting your attendance will be awarded at the end of the workshop. This serves as important evidence of your continuing professional commitment to your career.

IDC Technologies is an Institution of Engineering and Technology Endorsed Training Provider.

100% MONEY BACK GUARANTEE

IDC Technologies' engineers have put considerable time and experience into ensuring that you derive the maximum value from each workshop. If you feel by lunch time of the first day that the workshop is not appropriate, please let us know so that we can arrange a 100% refund of your fee.

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BOOKING CODE: A B C D E F G H I J K L M N O P Q R S T U V W X Y Z