

Get a 360° view on Power Supplies

Advanced Power Supply Measurements



Seminar

including practical examples and demonstrations
with the power supply specialists
Steven M. Sandler (Picotest) and
Dr. Ali Shirsavar (Biricha Digital Power)

October 19, 2011 - Duisburg, Germany
October 21, 2011 - Munich, Germany

Program

Topics

In this compact one-day seminar you learn how to perform all the necessary measurements to ensure reliable operation of your power supply in the field. By introducing new measurement methods like the non-invasive stability assessment, we show how you can measure the performance parameters of power supplies in their working environment. In addition, you will learn about real life measurement challenges and best practices to master them.

No access to the feedback loop? No problem!

By performing non-invasive phase margin measurements, you can determine the stability of a power supply non-invasively during operation.

How small is small signal?

Choosing the right signal level is essential for getting the correct phase margin and gain margin of your power supply.

You need more bandwidth than you think.

Sometimes instabilities of power supplies arise at frequencies you never planned to look at. By analyzing a simple LDO, we will demonstrate how important bandwidth for your measurements is.

Choose the right injection point.

For the analysis of your power supply, it is important to make sure that you inject your signal at the right position inside the control loop. By choosing the correct injection point, you can significantly improve the quality of your measurement results.

Can PSRR and Reverse Rejection be measured?

Yes, these can be measured and yes, these are important parameters you should look at when working in systems where one supply voltage feeds several DC/DC converters.

Designing stable digital power supplies

Designing digital compensators is surprisingly easy. In this session you will learn how to design a stable digital controller.

Starting from a stable analog compensator with poles and zeros in continuous time, we will convert this into a digital controller using bi-linear transform.

Practical issues such as the effects of sampling and reconstruction on the phase margin will also be discussed. The complete design will be implemented on a TI C2000 MCU and the session concludes with practical loop measurement of our digital power supply.

Speakers



Steven M. Sandler is an internationally well known expert for power supply design and measurements. With experience from countless mission critical designs used in the space, defense, and energy industries Steve is one of the most experienced power supply specialists of our time.

www.picotest.com/blog



Dr. Ali Shirsavar is an expert in the design of digital power supplies. He combines an in-depth academic background on power supply design theory with the practical hands-on skills required to get analog and digital power supply designs working.

www.biricha.com

Participants

- Power supply design engineers who want to get a comprehensive and complete view on the performance of their power supply design.
- Electronic engineers who need to assess the quality of a power supply they are using or planning to buy.

Agenda

08:30 - 11:45

- How to measure power - an introduction to the correct measurement of all important power supply parameters

11:45 - 13:30

- Lunch

13:30 - 17:00

- Practical measurements of non-invasive and traditional stability, PSRR, Cross Talk...
- Stable digital controller design for power supplies

Seminar partners

aei systems



PICOTEST

Tektronix®

TEXAS INSTRUMENTS

Free Participation

The participation in our seminar is free of charge.

Venue

The one-day seminars will take place at the following locations:

Duisburg

October 19, 2011

Mercatorhalle Duisburg
im CityPalais
Landfermannstraße 6
47051 Duisburg
Germany

Munich

October 21, 2011

Novotel Munich Airport
Nordallee 29
85356 Munich Airport
Germany

Accommodation

For participants who arrive before or leave after the day of the seminar, we recommend a stay in one of the following hotels:

Duisburg

Mercure Hotel Duisburg City
Landfermannstraße 20
D-47051 Duisburg
Tel.: +49 203 3000 30
Fax: +49 203 3000 3555
E-Mail: H0743@accor.com

Munich

Novotel München Airport
Nordallee 29
D-85356 München
Tel.: +49 89 9705 130
Fax: +49 89 9705 131 00
E-Mail: H6711@accor.com

If you need help with the booking of the rooms or a taxi, no problem. Just let us know and we will be happy to assist you.

Organization

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6833 Klaus, Austria
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E-Mail: patricia.marte@omicron.at



Registration

Register until:
September 30, 2011

Please register online at
www.omicron-lab.com/event
or send the filled form below to:

OMICRON Lab,
Oberes Ried 1, 6833 Klaus, Austria
Fax +43 5523 507-7304

- Yes, I would like to attend the free OMICRON Lab seminar in **Duisburg on October 19, 2011.**
- Yes, I would like to attend the free OMICRON Lab seminar in **Munich on October 21, 2011.**
- Unfortunately I can not attend the seminar. Please send me the seminar documentation after the seminar.

More information can be found at:
www.omicron-lab.com/event

Name:

Function:

Company:

Address:

ZIP/City/Country:

Tel/Fax:

E-Mail:

Signature:

We look forward to hearing from you!