TI Precision Labs

The industry's first comprehensive analog curriculum which pairs theory and applied lab exercises

25th October 2018 - Conference Room - Hotel Unirea, Iasi, Romania

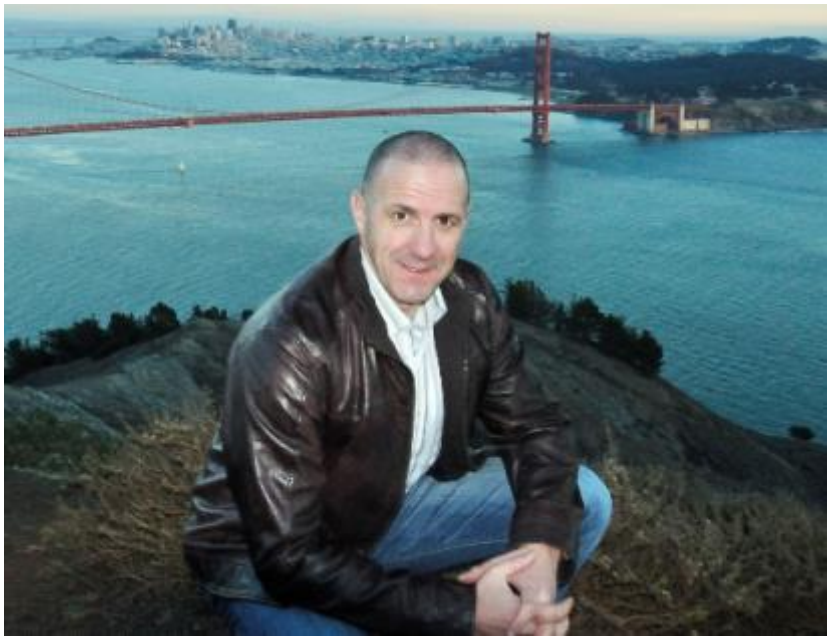
Speaker: Marek Lis

- Senior Analog Applications Engineer on PA team
- Supports:
  - Operational Amplifiers
  - Voltage References
  - Macro-models
  - Long-term Stability
  - Statistical Guarantee of Specs

- Worked for ten years at Burr-Brown Corporation as an analog IC design engineer
- Designed over twenty new products from op amps to voltage LDO regulators
- Managed development of series voltage references and instrumentation amplifiers
- Co-invented *Green-Lis* op amp macro-model; state-of-the-art *Pspice* based architecture

Studied Electrical Engineering at the University of Michigan and the University of Arizona

Speaker: Soufiane Bendaoud



- Business Development Manager
- Support:
  - Operational amplifiers
  - Data converters
  - Voltage references

Soufiane worked at Analog Devices as an applications engineer and at National Semiconductor as a product definer before joining TI as a business development manager.

He holds a BSEE and a MBA from the University of California and has published over 50 technical articles

Agenda - 25th October 2018

- 10:15 – 10:30 Introduction to Precision LABS
- 10:30 – 11:20 Input / Output Limitation: Lab and Lecture
- 11:20 – 11:30 Break
- 11:30 – 12:15 Bandwidth: Lab and Lecture
- 12:15 – 13:00 Slew Rate: Lab and Lecture
- 13:00 – 13:30 Noise Part I
- 13:30 – 14:15 Lunch
- 14:15 – 15:30 Noise II and Lab Session
- 15:30 – 15:40 Break
- 15:40 – 16:30 Stability: Two Lecture Sessions and Lab Session
- 16:30 – 16:45 Q & A

Precision Labs - Web

www.ti.com/precision-labs

- 30+ Videos on op amp topics
- Questions and Solutions
- Labs and Evaluation Module available

Evaluation Modules (EVM)

TI Precision Labs – Op Amp Evaluation Module

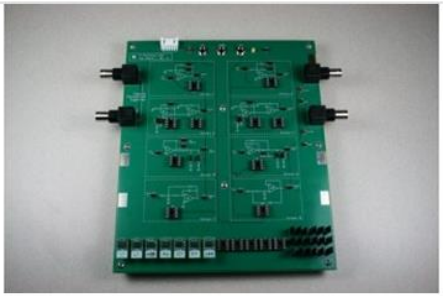
(ACTIVE) TI-PLABS-AMP-EVM

Description & Features | Technical Documents | Support & Community | Order Now

Key Document

- TI Precision Labs EVM User's Guide (Rev. A) (PDF 1529 KB)
  06 Feb 2015

» View All Technical Documents (2)



Description

The TI-PLABS-AMP-EVM is an experimenter's board that is used in conjunction with TI Precision

DIP Adapter Evaluation Module

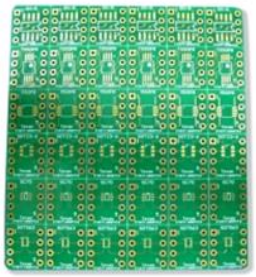
(ACTIVE) DIP-ADAPTER-EVM

Description & Features | Technical Documents | Support & Community | Order Now

Key Document

- DIP Adapter EVM Usage Instructions (PDF 1099 KB)
  14 Jan 2013

» View All Technical Documents (1)

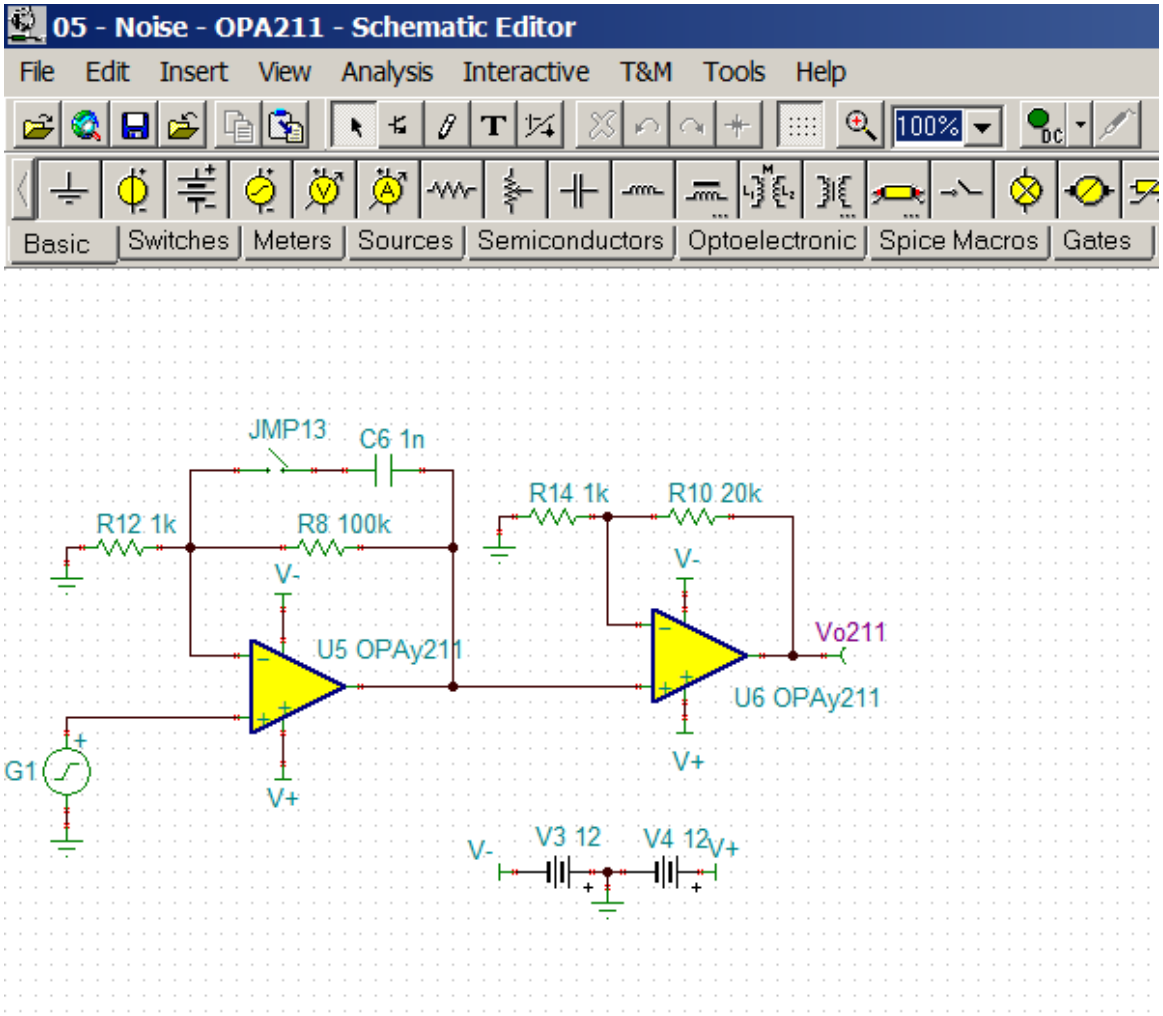


Description

DIP-Adapter-EVM provides an easy, low cost way to prototype small surface mount IC's. Supports these TI packages: D or U(SOIC-8), PW(TSSOP-8), DGK(MSOP-8), DBV(SOT23-6, SOT23-5 and SOT23-

TI Tina Spice

http://www.ti.com/tool/tina-ti



The Precision Labs Live Curriculum

Industry's First Comprehensive Analog Curriculum

Over 4 hours of detailed theory applied to hands-on labs using TINA-TI circuit simulations and experimentation using a real circuit with test equipment

Learn solutions to the most frequently encountered analog circuit and design challenges

Long Topics: (choose 1)

OpAmp Noise: Did you know that a standard resistor component sitting upon your desk doing *"nothing"* is actually generating noise? (90min)

Stability: Did the circuit you designed to create a precision dc output end up as an oscillator? (90min)

Short Topics: (choose 2 or 3)

Vos and Ib: How well do you know the major contributors to DC op amp input errors? (40min)

Input & output swing limitations: Have you ever experienced unexpected signal output behavior of an op amp, such as clipping or other non-linear behavior? (40min)

Slew Rate: True or False? A large and rapid voltage change in an op amp's output is always limited by the slew rate of the device. (60min)

Bandwidth: Did you know when calculating op amp bandwith you should always use the non-inverting gain? Do you know why bandwidth impacts Iq? (40min)

The Precision Labs Experience

Industry's First Comprehensive Analog Curriculum

Gain & strengthen analog expertise through theory & applied lab exercises

Live Experience

- Led by TI's analog experts
- Hands-on labs with 30 workstations of NI VirtualBench and laptop
- Supports up to 60 participants per session (2 Engineers per workstation)
- 6 hours of *interactive* coursework
- Presentation Workbook, Lab Manual, Lab Experiment Board, & analog pocket reference provided

Rich material built on a solid foundation of deep technical content

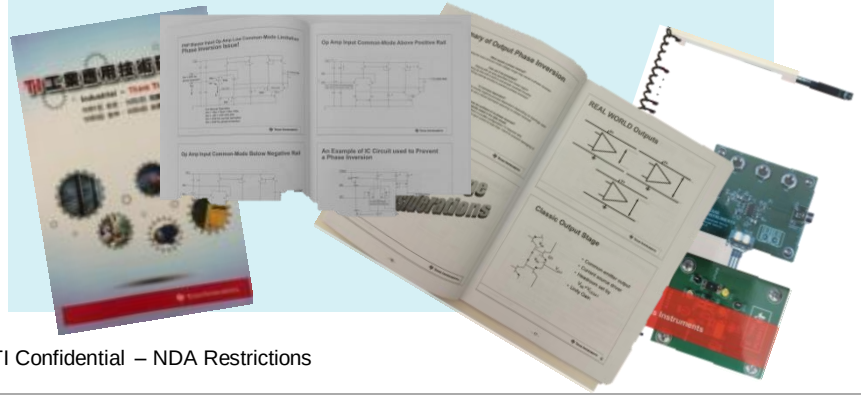
The Precision Labs Live Experience

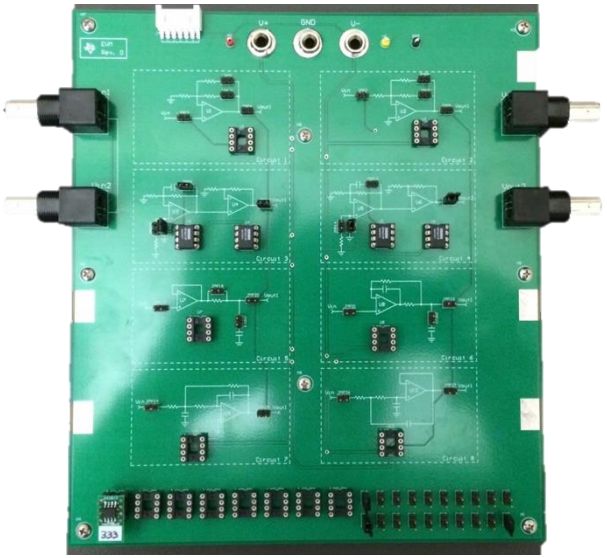
Industry's First Comprehensive Analog Curriculum

Gain & strengthen analog expertise through theory & applied lab exercises

Live Experience

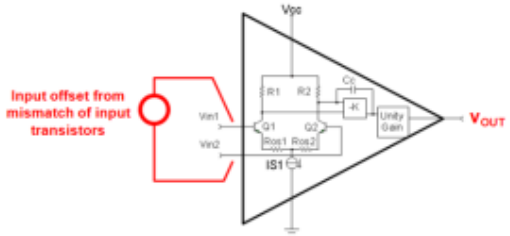
- Rich, technical & practical material
- Unique, engaging format features 15 minutes of theory followed by 15 minutes of applied lab experiments
- Learn solutions to the most frequently encountered analog circuit and design challenges
- Both new *and* experienced participants will gain new knowledge and techniques

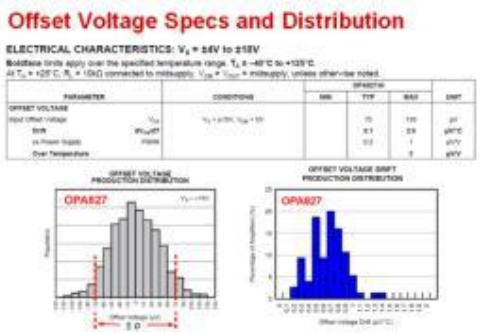


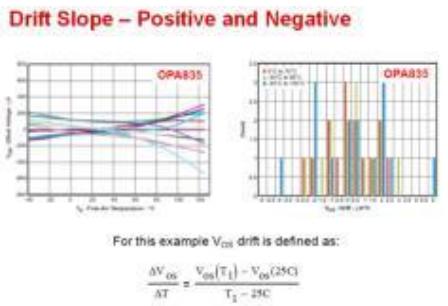


How the Precision Labs work?

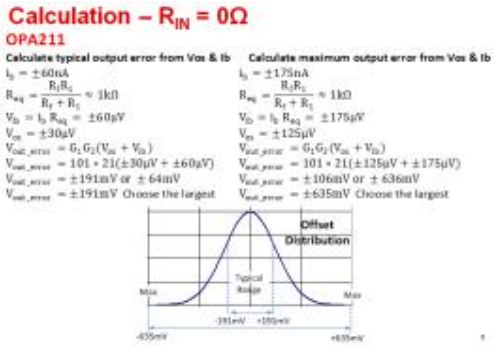
- **Part I: Lecture**
  - Theory Discussion of Technical Topics

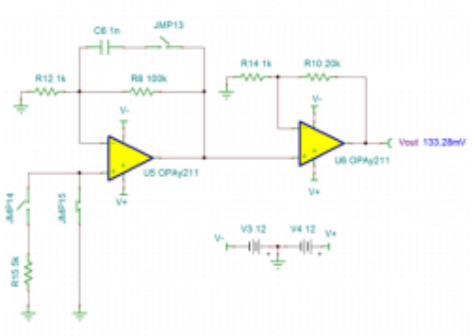


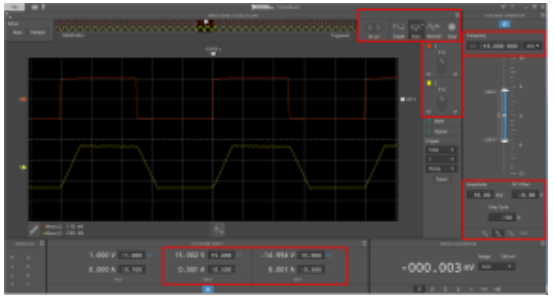




- **Part II: Lab**
  - Calculation → Simulation → Measurement



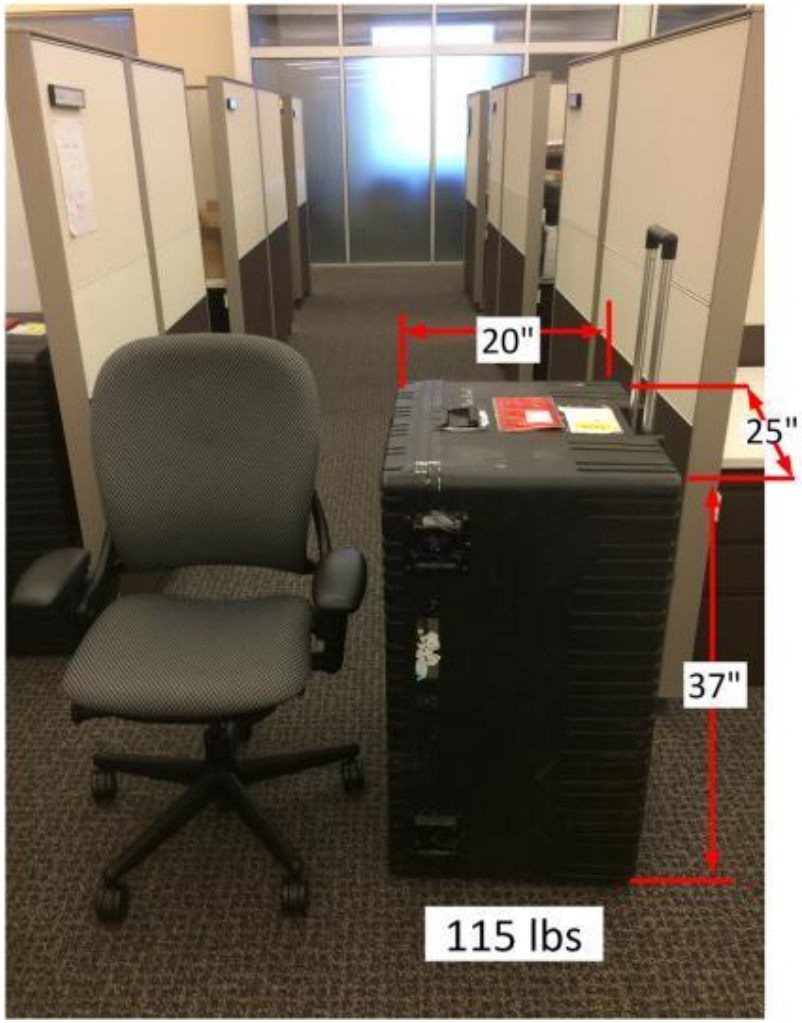




Room requirement

In a typical room setup two engineers share one PLABS kit at one table. Ideally power is provided to each table. We do include extension cords, it is much easer if the table has power. The maximum we can accommodate in a session is 60 people: 30 kits, and 30 tables.

Shipment



Contents of kit

Kit Contents:
1 NI Virtual Bench
1 Op Amp PCB
1 ACER Laptop
1 Box Power Cords, BNC cables, DMM Cables