Electrical and Computer Engineering

Lab Solutions

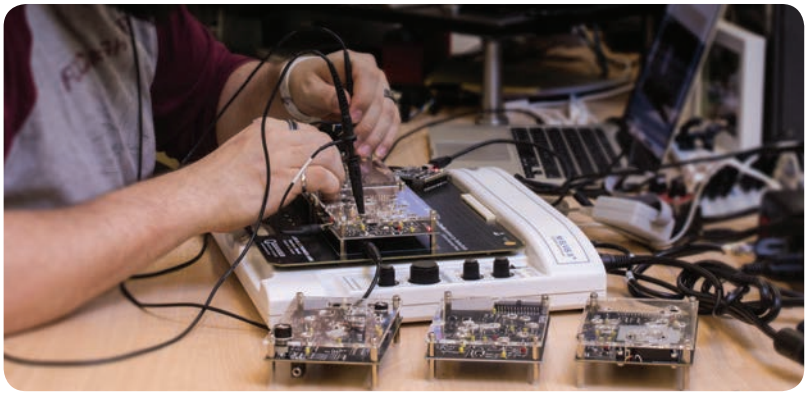
QUANSER

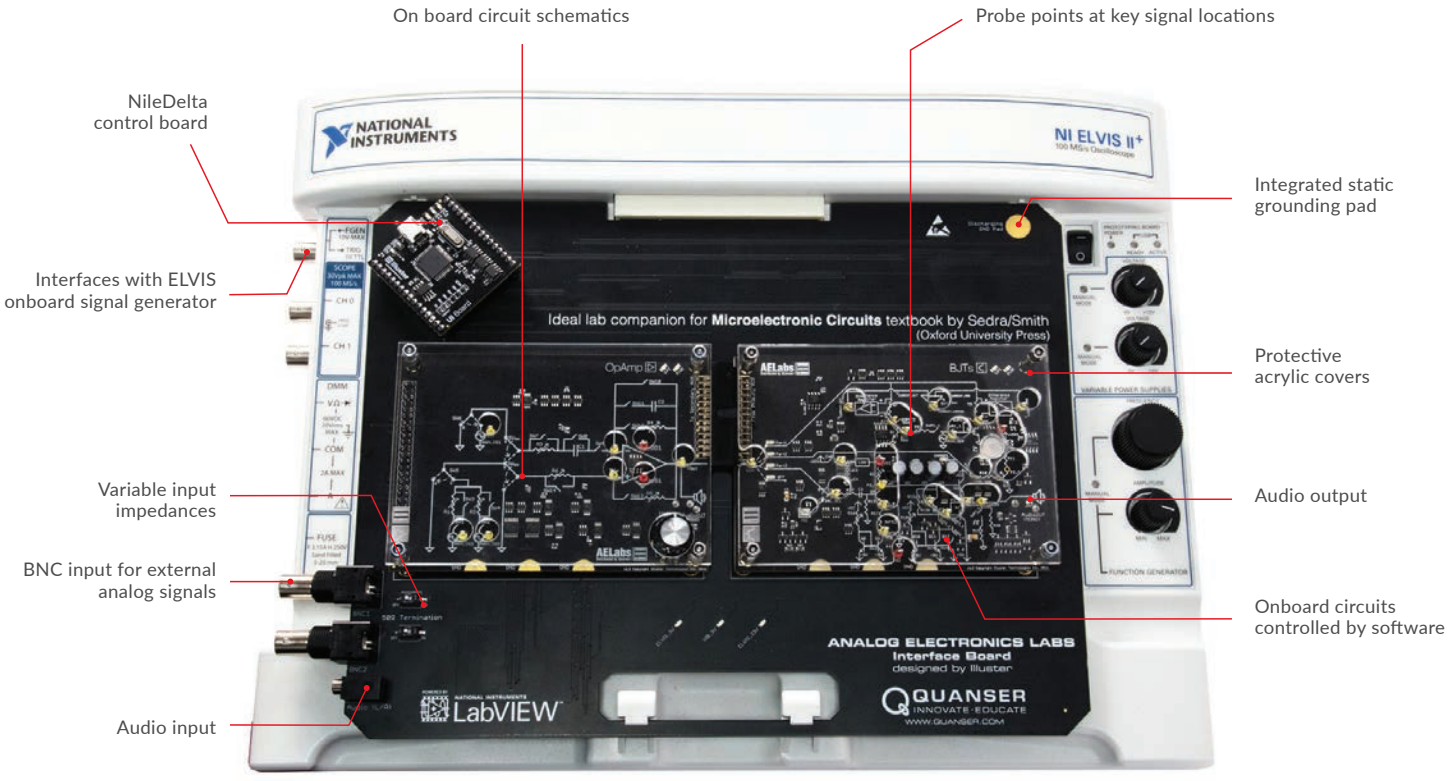
INNOVATE · EDUCATE

Electrical and Computer Engineering courses present unique challenges in the lab. Traditional ECE labs center around wiring circuits and taking measurements, however the tools involved often interfere with, rather than enhance, the learning experience. With Quanser ECE lab solutions, you can give your students hands on experience with ECE concepts that far exceed the limitations of breadboards and banana cables. Quanser products focus on integrated instrumentation and flexible onboard circuitry to give students in-depth control via safe, robust, easy-to-use tools.

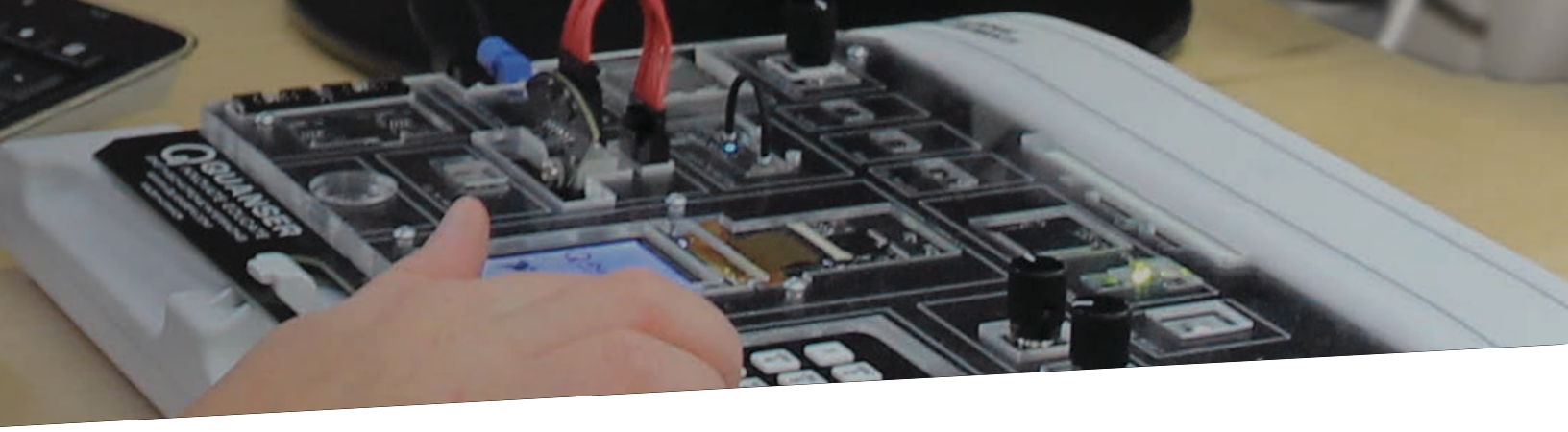
ANALOG ELECTRONICS

Analog circuits, including semiconductors, amplifiers, and filters remain central to the operation of all electronic systems. Even in our current engineering climate of overwhelmingly digital solutions, analog circuits are still relevant. Quanser, together with Illuster Technologies have created a comprehensive lab that teaches the fundamentals and importance of analog electronics. With AELabs, students can configure, observe, and experiment with complex analog circuits such as MOSFET amplifiers.



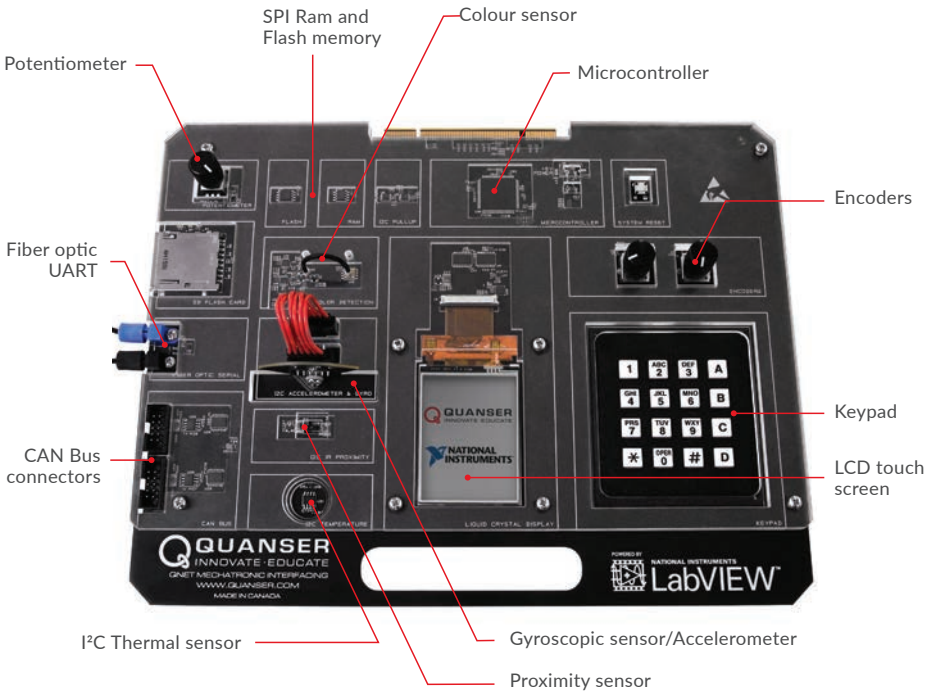


OpAmp and BJT boards shown



EMBEDDED SYSTEMS

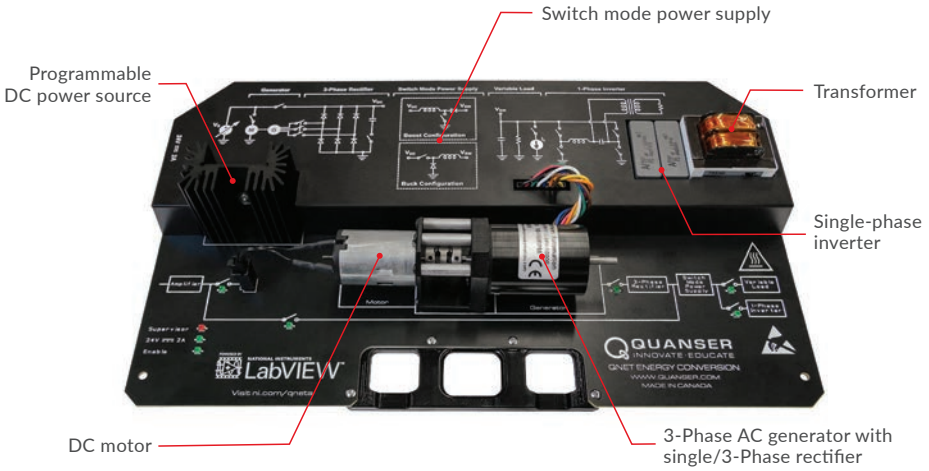
In recent years, embedded microcontroller systems have become increasingly common and accessible. However fully leveraging these products requires an understanding of the low-level operation of microcontroller systems which is not easily acquired. Teaching these concepts in a way which protects hardware from damage due to human error, while allowing for maximum flexibility presents a unique challenge. Furthermore, a focus on real-world embedded targets demands knowledge of object-oriented programming languages. Quanser leverages the NI ELVIS platform and the intuitive visual programming environment of LabVIEW to allow students to control low level functions of a PIC microcontroller. Students can then learn how to leverage interface protocols to interact with digital systems using a proven, robust hardware implementation.



Mechatronic Interfacing Board

POWER ELECTRONICS

As the growth of green power leads to ever more complex power systems, the demand for knowledge about energy systems is poised to grow in the near future. Traditional power electronics labs have always focused on large format industrial hardware operating at high voltage. These systems are simply not accessible or safe enough for students to get the hands-on experience they need with power systems and circuits. In partnership with National Instruments, Quanser is changing the way students experience power electronics. With a fully integrated lab-bench power system operating at safe voltages, Quanser is paving the way for a new kind of electronics lab.



Energy Conversion Board

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