

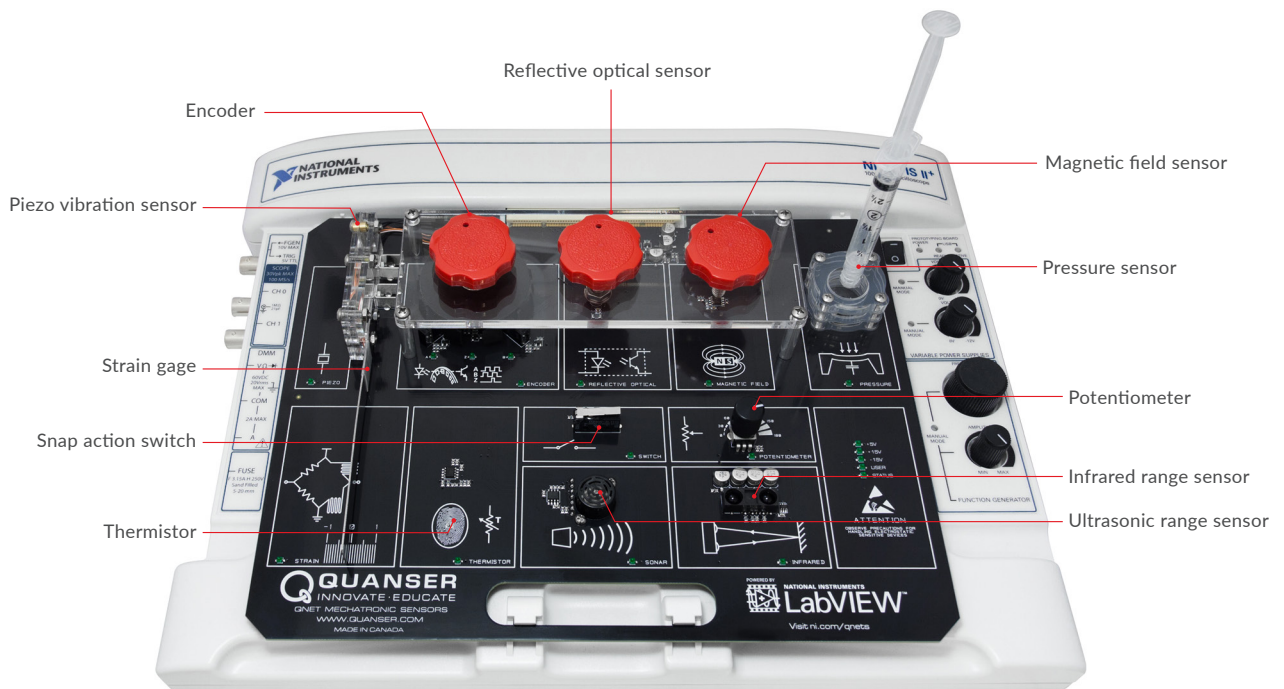
**Mechatronics  
Lab Solutions**



Traditionally, developing a fully functional mechatronic system requires expertise in actuation, sensing, control and vision, along with time developing hardware and software. This development process, although rigorous, can interfere with understanding fundamentals, and takes away precious time that can be otherwise dedicated to innovation. With Quanser's mechatronic solutions, instructors can focus on teaching fundamentals of the mechatronic subsystems and advanced applications with fully developed robust hardware powered by rigorous software.

## FUNDAMENTALS

Mechatronic systems bring together aspects of mechanical engineering, electronics, control systems and computer engineering. In order to bring these aspects together, Quanser has designed a set of Engineering Trainers (QNETs) that teach the fundamentals of mechatronics. Built exclusively for the NI ELVIS platform, the QNET Mechatronic Sensors, Actuators, Interfacing, and Systems boards are designed to teach these core concepts all in a powerful, intuitive LabVIEW environment.



QNET Mechatronic Sensors Board

Built exclusively for the NI ELVIS platform, the QNET Mechatronics series includes:

**Sensors:** survey of common mechatronic sensors used in industry.

**Actuators:** design considerations, common specifications, interfacing and operation techniques for a variety of actuators.

**Interfacing:** fundamentals of I/O and inter-device communication including SPI, I<sup>2</sup>C and CAN bus.

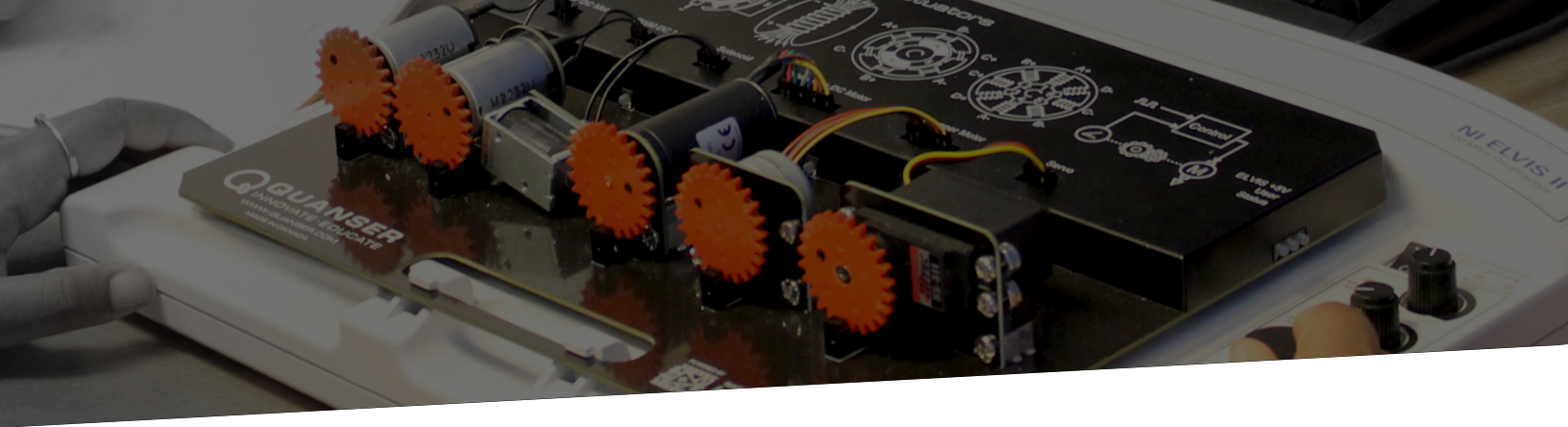
**Systems:** a complete mechatronic system designed to explore, develop and integrate component subsystems.



QNET Mechatronic Actuator Board

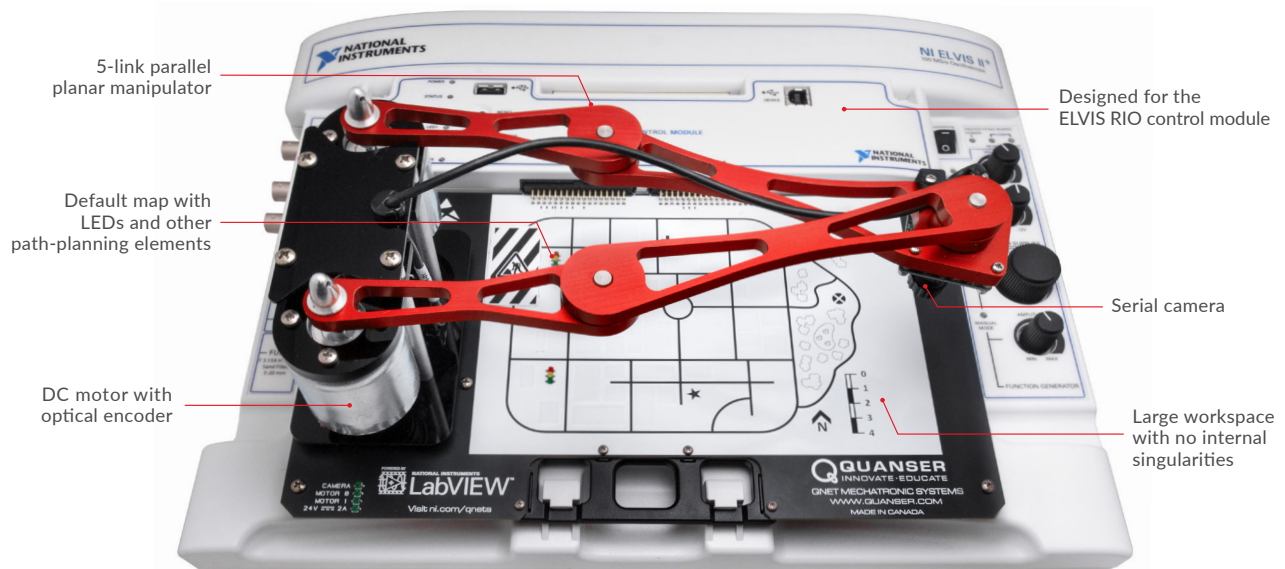


QNET Mechatronic Interfacing Board



## INTEGRATED SYSTEMS

Quanser has a wide variety of products to teach system integration. The QNET Mechatronic Systems board is the flagship systems trainer with hardware, software, and courseware developed specifically to teach mechatronic systems integration. From actuators and FPGA sensor integration, through mathematical modeling and image processing, to state machines and advanced applications, the QNET Mechatronic Systems board offers a rich experience for students.



QNET Mechatronic Systems Board

The QUBE-Servo 2 and Quanser AERO also offer students a series of challenges that lead them towards more advanced integration tasks including flight control of a virtual V22 Osprey, and cruise control of a virtual vehicle. Further opportunities to extend the topics covered by all of the Quanser products open up a variety of pathways for instructors to educate, and students to innovate, no matter what be the engineering background.



QUBE-Servo 2 for NI myRIO



Quanser AERO for NI myRIO



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+1-905-940-3575 | INFO@QUANSER.COM |



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