QUANSER
INNOVATE·EDUCATE

QLABS VIRTUAL ROTARY SERVO

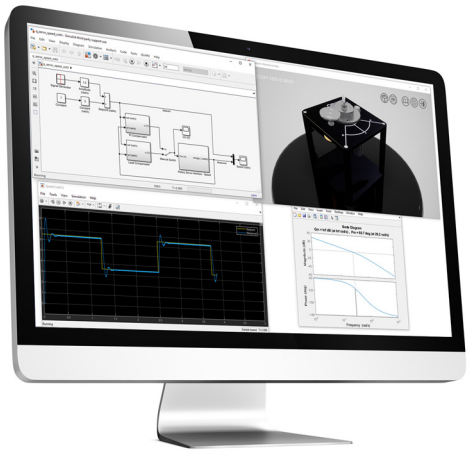
Virtual platform for distance and blended undergraduate control systems courses

QLabs Virtual Rotary Servo is a fully instrumented, dynamically accurate digital twin of a classic Rotary Servo Base Unit system. It behaves in the same way as the physical hardware and can be measured and controlled using MATLAB®/Simulink® and other development environments. With QLabs Virtual Rotary Servo, you can enrich your lectures and activities in traditional labs, or bring credible, authentic model-based lab experiences into your distance and online control systems course.

Same as the physical Rotary Servo Base Unit, the virtual system features a DC motor that drives a smaller pinion gear. This gear is fixed to a larger middle gear that rotates on the load shaft. The position of the load shaft is measured using a high-resolution optical encoder or a potentiometer.

QLabs Virtual Rotary Servo is available as a 12-month, multi-seat subscription. The platform is compatible with the physical Rotary Servo Base Unit curriculum, which covers modelling, position, and speed control topics.

Features



Academically appropriate

High-fidelity, credible lab experiences equivalent to use of physical lab equipment

Comprehensive Resources

ABET-aligned curriculum

Open access

Full access to system parameters through MATLAB®/Simulink®

Scalable

12-month, multi-seat subscription

Courseware

Modelling Topics

- First-principles derivation
- Experimental derivation
- Transfer function representation
- Frequency response representation
- Model validation

Control Topics

- PID
- Lead Compensator
- Steady-state error

QLabs Virtual Rotary Servo runs on Windows 10 (64-bit) and requires MATLAB 2019a or later (not included).