QUANSER
INNOVATE·EDUCATE

ROTARY SERVO BASE UNIT

Turn-key servomotor system for modern, expandable control labs

The Rotary Servo is an easy-to-use and intuitive platform, and the base unit of the Quanser rotary control experiments. It is ideally suited to introduce basic control concepts and theories. Use the Rotary Servo Base Unit on its own to perform position and speed control experiments, or select the Inverted Pendulum, Flexible Link, or another from ten add-on modules[1] to expand the range of control concepts you can explore and the complexity of experiments.

The Rotary Servo Base Unit is a geared servo-mechanism system. The DC motor drives a smaller pinion gear, 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. The encoder is also used to estimate the speed of the motor.

Features

Precise

The system's inherent precision helps deliver accurate, repeatable results required for teaching & research labs.

Robust

A durable system able to accommodate enthusiastic undergraduate students.

Comprehensive Courseware

ABET-aligned courseware for MATLAB®/Simulink® or LabVIEW™ covers modelling, position, and speed control topics.

Expandable

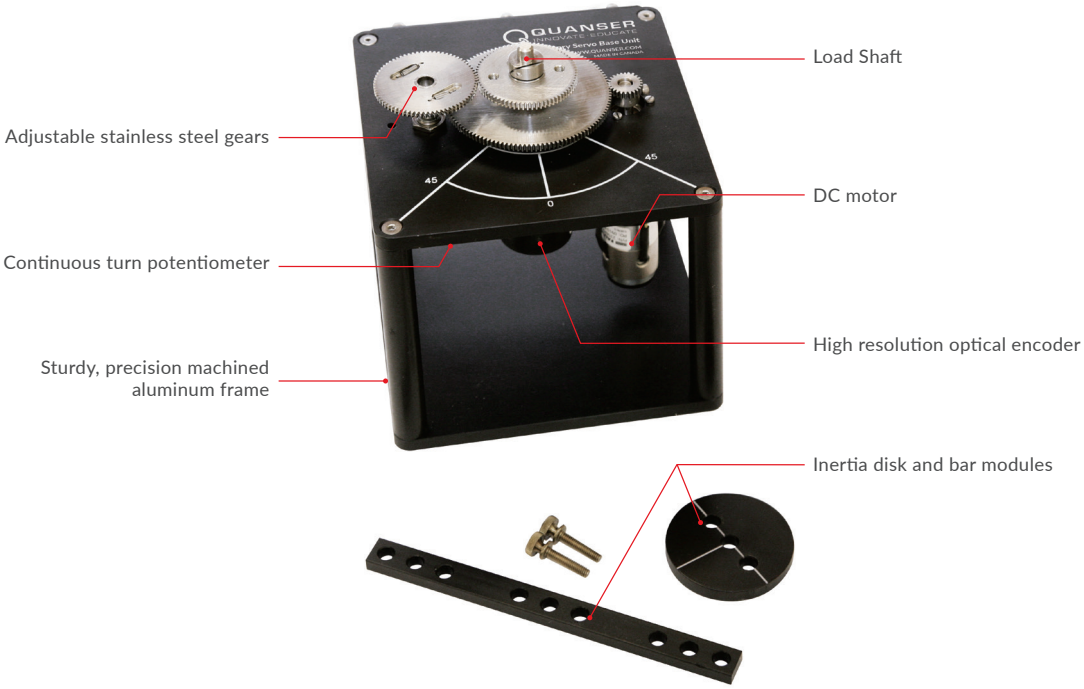
Ten add-on modules[1] for experiments of varying complexity across a wide range of topics and disciplines

Workstation Components

Plant	Rotary Servo Base Unit
Data acquisition device	Quanser Q2-USB
Amplifier	Quanser VoltPAQ-X1
Control design environment	QUARC for MATLAB®/Simulink® QRCP for LabVIEW™

[1] The add-on modules are sold separately

Product Details



Courseware

Modelling Topics

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

Control Topics

- PID control
- Lead compensator
- Steady-state error

Device Specifications

Dimensions (L x W x H)	15 x 15 x 18 cm
Weight	1.2 kg
Nominal voltage	6 V
Motor maximum continuous current (recommended)	1 A
Encoder resolution (in quadrature)	4096 counts/rev
Gear configuration	70:1 (high-gear) 14:1 (low-gear)

About Quanser:

For 30 years, Quanser has been the world leader in innovative technology for engineering education and research. With roots in control, mechatronics, and robotics, Quanser has advanced to the forefront of the global movement in engineering education transformation in the face of unprecedented opportunities and challenges triggered by autonomous robotics, IoT, Industry 4.0, and cyber-physical systems.