

# GYRO/STABLE PLATFORM

## Introduce and explore rotational dynamics concepts

The Gyro/Stable Platform module is ideal to introduce and explore rotational dynamics principles. You can use it to demonstrate real-world control challenges such as those encountered in control and guidance of sea vessels, aircraft and submarines or in satellite navigation.

The Gyro/Stable Platform module consists of a rotating disk mounted inside a frame and actuated about its center using a DC motor. An encoder measures the rotation of the frame, i.e. the disk tilt angle. The Gyro/Stable Platform module attaches to the the Rotary Servo Base Unit, which rotates the module in a horizontal plane. Further, the Rotary Servo Base Unit is mounted on a two-plate structure. This allows the whole system to be rotated manually relative to the fixed surface.

### 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

Courseware for MATLAB®/Simulink® or LabVIEW™ covers modelling, and control topics.



#### Expandable

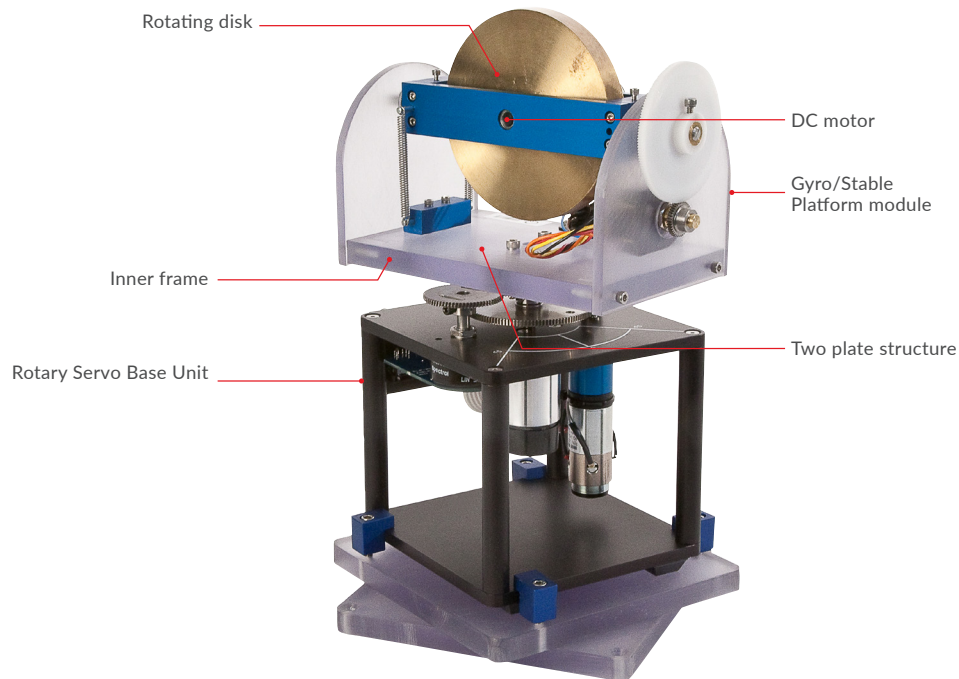
Use the Rotary Servo Base Unit on its own, or add one of other nine modules<sup>1</sup> for experiments of varying complexity across a wide range of topics and disciplines.

### Workstation Components

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

<sup>1</sup> The add-on modules are sold separately

## Product Details



## Courseware

### Modelling Topics

- First-principles derivations
- Transfer function representation

### Control Topics

- PD control

## Device Specifications

Rotating disk radius	5.08 cm
Rotating disk mass	0.8 kg
Rotating disk inertia about spin axis	1.0323 kg.m <sup>2</sup>
Gyroscope module inertia about input axis	0.002 kg.m <sup>2</sup>
Encoder resolution (in quadrature)	4096 counts/rev

### 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.

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