Advanced Teaching Systems







QUANSER CONSULTING

Quanser Consulting Inc. is the world leader in the design and manufacture of advanced systems for realtime control design and implementation used in education and research. Our experiments are ideal for implementing and evaluating feedback strategies such as PID, LQG, H infinity, fuzzy, neural nets, adaptive and nonlinear controllers. Quanser systems are used by more than 300 institutions worldwide, including universities, research laboratories and commercial organizations.

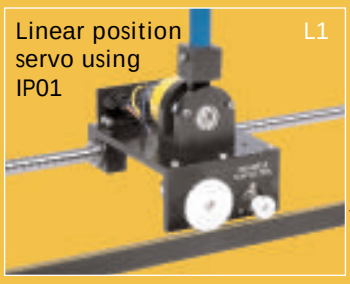
Quanser offers a variety of experiments that are appropriate for all levels of university education and research. We have developed a series of rotary and linear motion experiments that aptly utilize the concept of modularity. Modularity enables you to cost effectively employ the same power plant to perform experiments of varying complexity. By coupling the appropriate module to the plant, you achieve configurations ranging from simple position servo control to advanced MIMO systems such as the Seesaw/Pendulum. As well as modular systems, we also offer a series of specialty experiments including a 3 DOF helicopter and an earthquake simulating shaker table. Accessories include power modules and the MultiQ data acquisition board which are fully compatible with our quick connect cabling system resulting in speedy and efficient assembly.

All our experiments are controlled via WinCon, our Windows based realtime control software. WinCon enables you to run and modify SIMULINK generated code in realtime. WinCon can be executed on a standalone system or on a PC in a network thus empowering you with the ability to run controllers via the Internet! WinCon Professional further allows you to embed your own C code into the realtime process independent of SIMULINK. All our systems are furnished with MAPLE script files for differential equation derivation, MATLAB controller design script files and SIMULINK compatible controllers. All systems include a comprehensive manual which guides the student through all the phases of controller design incorporating modelling, simulation, implementation and results.

This pamphlet offers a quick overview of the systems available from Quanser Consulting. For details regarding these components, please refer to the accompanying literature or visit our web site at http://www.quanser.com. Note that Quanser will also build custom experiments to suit your special needs. For a free video and more information, please contact us directly or through your local representative.

Linear Motion Modular Experiments

Using the IP01 or IP02 Inverted Pendulum Modules you can perform up to twelve different experiments!

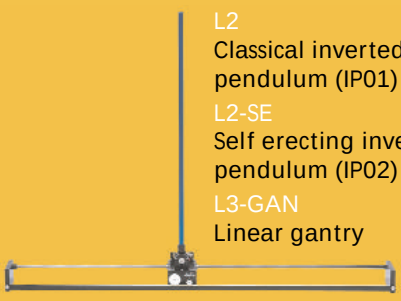




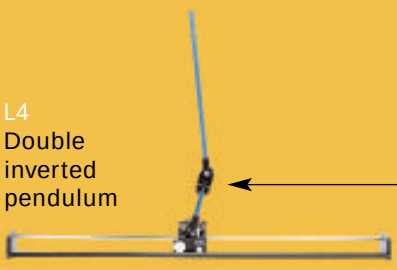
L2
Classical inverted pendulum (IP01)

L2-SE
Self erecting inverted pendulum (IP02)

L3-GAN
Linear gantry



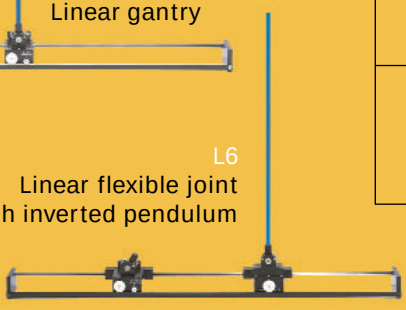
L4
Double inverted pendulum



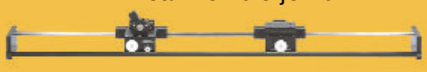
L7
Seesaw



L6
Linear flexible joint with inverted pendulum



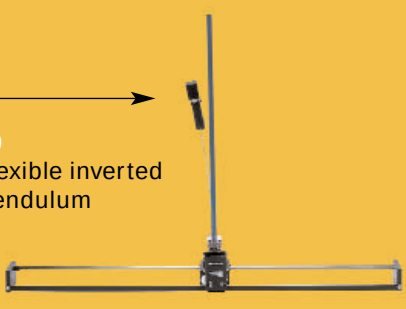
L5
Linear flexible joint



L7
Seesaw



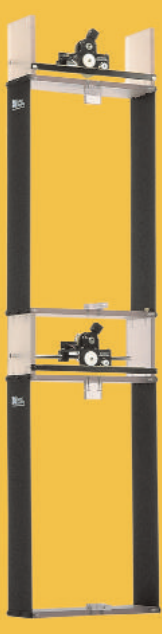
L9
Flexible inverted pendulum



L8 Linear flexible joint on seesaw



L12
Active mass damper two floors



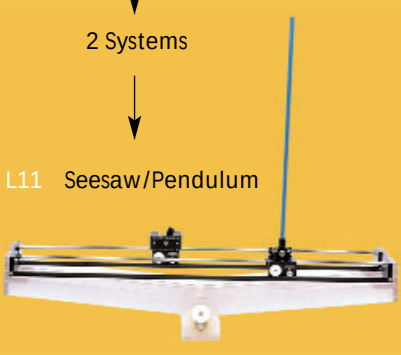
2 Systems

L10
Active mass damper one floor



2 Systems

L11 Seesaw/Pendulum

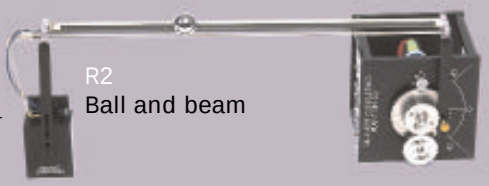


Rotary Motion Modular Experiments

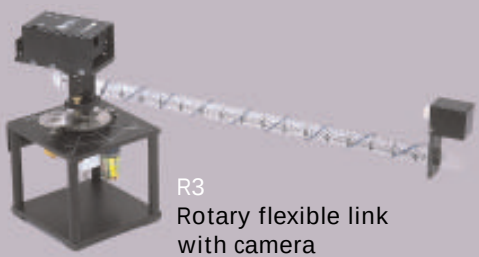
Using the SRV02 Servo Plant as a fundamental module you can perform up to eleven different experiments!



R1
SRV02 position servo



R2
Ball and beam

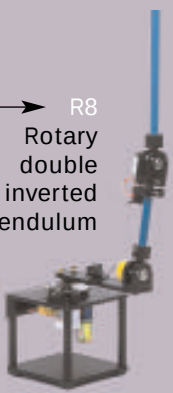


R3
Rotary flexible link with camera

R7
Self erecting rotary inverted pendulum



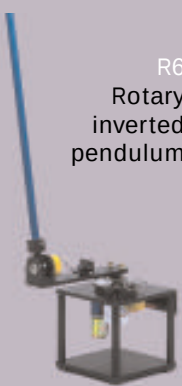
R8
Rotary double inverted pendulum



R4
Rotary flexible joint



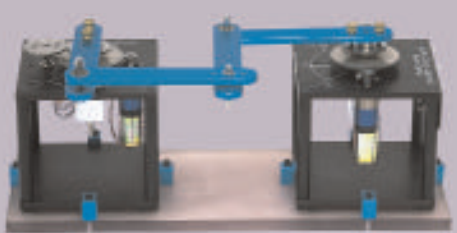
R6
Rotary inverted pendulum





Second servo

R9 2 DOF robot

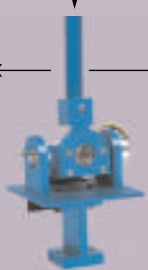




R5 Gyro/Stable platform

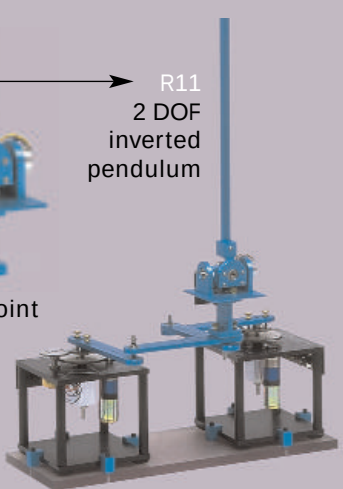


R10
2 DOF gantry crane

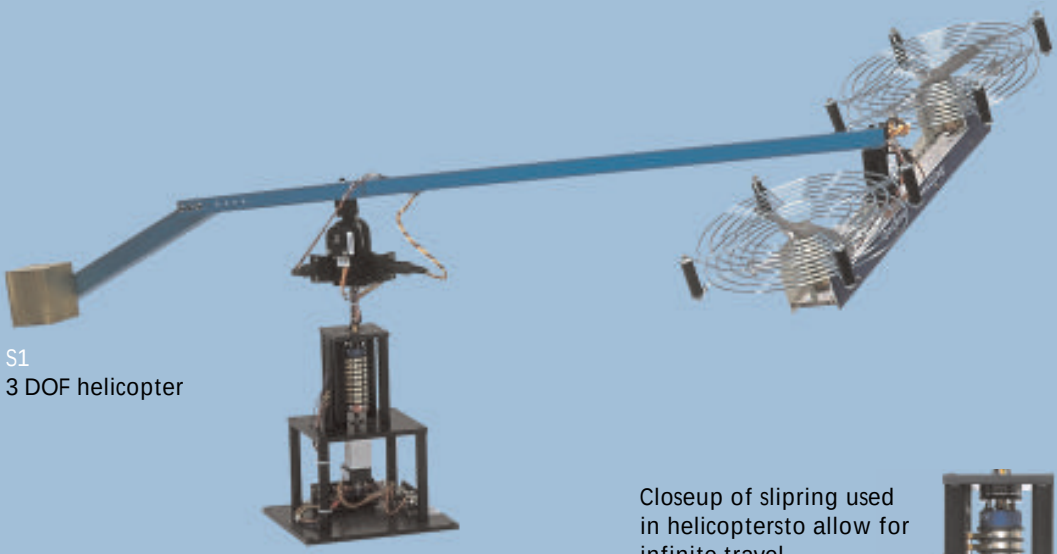


2 DOF joint

R11
2 DOF inverted pendulum

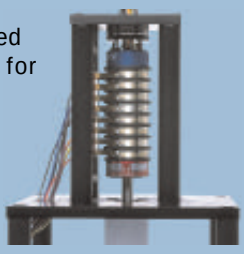


Specialty Experiments

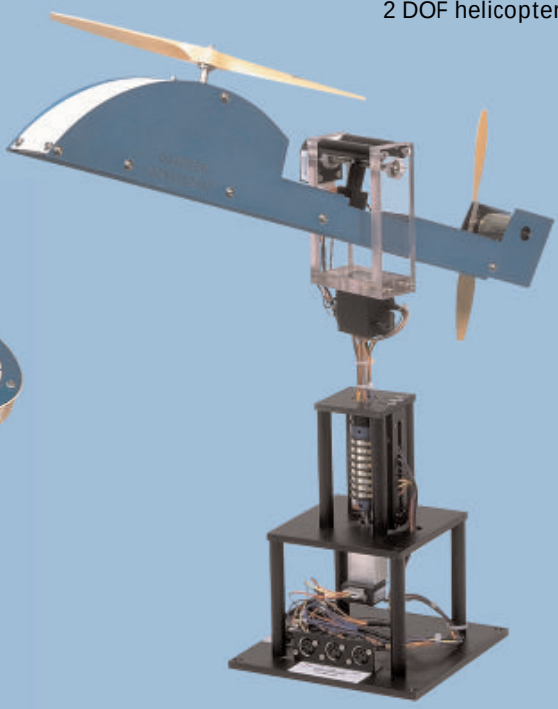


S1
3 DOF helicopter

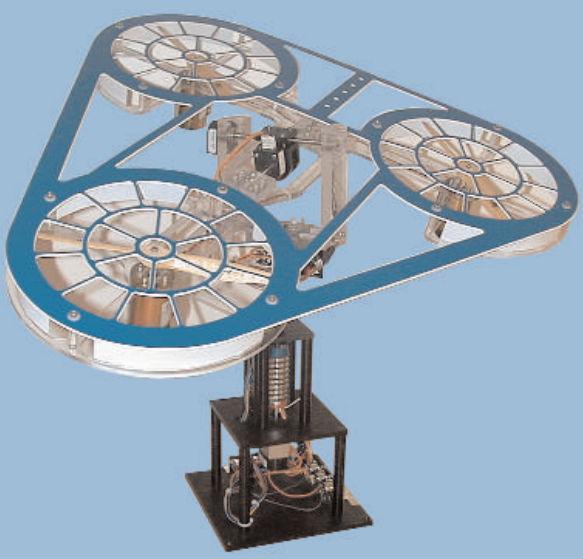
Closeup of slipring used in helicoptersto allow for infinite travel



S2
2 DOF helicopter



S9
3 DOF UFO helicopter



Specialty Experiments

S3 High g active mass damper



S4 Shaker Table

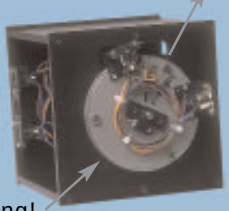


S5
High wire walker



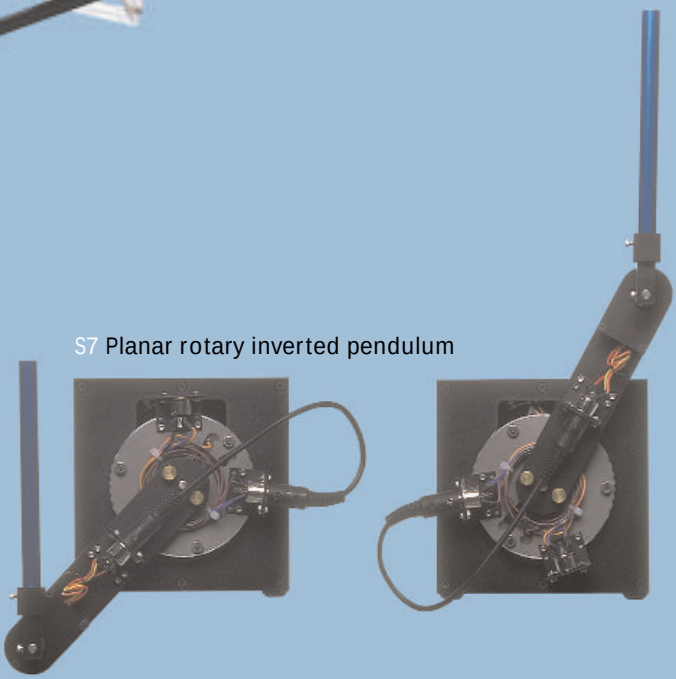
S6
Direct drive rotary servo SRV03

Compatible with ALL ROTARY SRV02 modules



With slipring!

S7 Planar rotary inverted pendulum





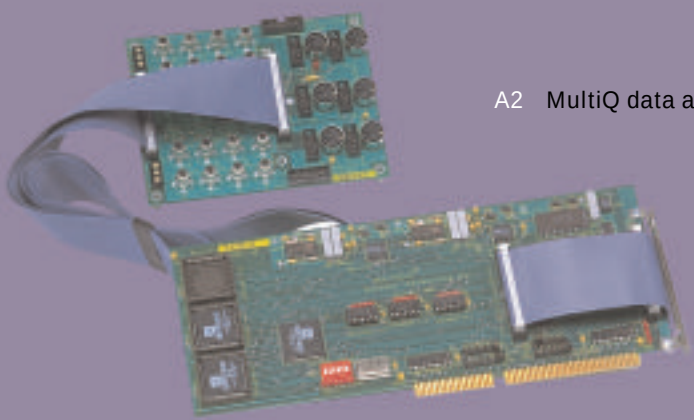
S8
Large single flexible link

Accessories





A1 Universal power modules



A2 MultiQ data acquisition systems



A3 WinCon realtime control software

- Realtime control of SIMULINK
- Standalone controllers
- Control via the INTERNET
- Sampling rates up to 50 kHz
- Professional version

Quanser Consulting
ADVANCED TEACHING SYSTEMS

102 George Street, Hamilton,
Ontario, Canada L8P 1E2
Tel.: (905) 527-5208 • Fax: (905) 570-1906
E-mail: info@quanser.com
http://www.quanser.com

All product names are trademarks of their respective holders.