



A servo pendulum is a specific type of control system used for applications like pendulum control and inverted pendulum control.

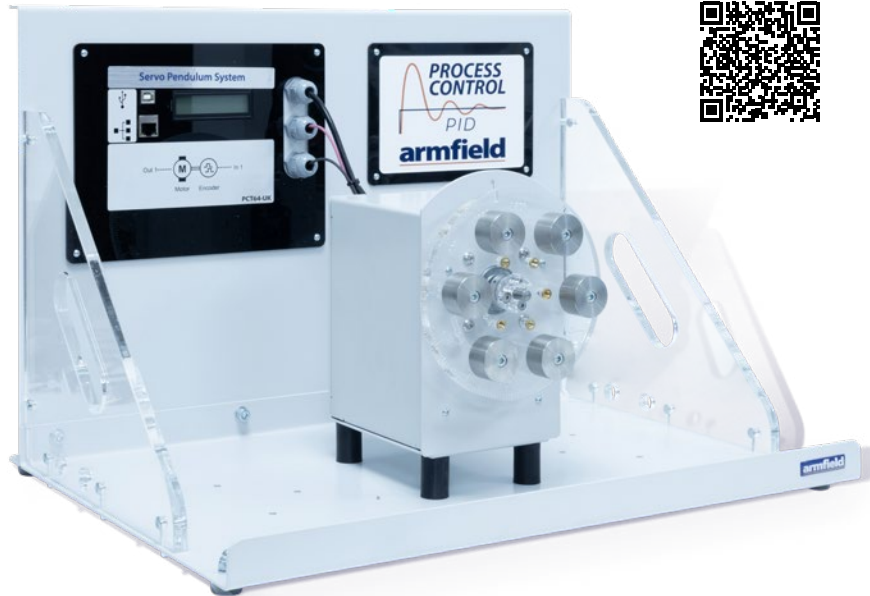
Learning about servo pendulum control systems allows students to see real-world applications of control theory. These systems are used in areas like robotics, aviation, and mechatronics, and understanding them can help students relate theory to practice.

Pressure control is directly related to the safety of industrial processes. Improper pressure levels can lead to equipment failure, leaks, or even explosions. Teaching pressure control emphasizes the importance of maintaining safe operating conditions.

The Armfield PCT64 servo pendulum control system introduces students to fundamental control concepts, such as feedback control, proportional-integral-derivative (PID) controllers, and closed-loop control systems.

The system consists of a powerful DC motor mounted on a rugged frame. A disc with captive nuts is attached to the DC motor and students are able to screw in 100-gram weights to different parts of the disc to alter the characteristics of the system.

A single weight at 0 degrees forms an inverting pendulum.



Features/Benefits

- ▶ USB, WiFi, Bluetooth and LAN communications supplied as standard
- ▶ Supplied software includes Basic control, On/Off control and PID control
- ▶ Software dynamically displays set point, Process value and Kp, Ki, and Kd
- ▶ MATLAB and Labview compatible
- ▶ Supplied with full set of manuals and teaching material

Experimental content

- ▶ Understanding how to control driving devices
- ▶ Understanding the sensors
- ▶ On/Off control systems
- ▶ System time constant
- ▶ P controller
- ▶ PI controller
- ▶ PID controller
- ▶ Zeigler Nichols algorithm
- ▶ Integral wind up
- ▶ Derivative filter
- ▶ Manual tuning
- ▶ Interfacing with MATLAB/ LabVIEW

Ordering specifications

PCT64 Servo Process Control System Process

A Servo Pendulum Process Control trainer, comprising:

- ▶ 24V PSU 60w 2.5a
- ▶ Servo Pendulum control assembly
- ▶ USB lead
- ▶ Manual Control software allowing low level access to the Drive and Load in each system allowing calibration of sensors and drive systems.
- ▶ On/Off Control software allowing control of each system with a simple On/Off algorithm, view software based oscillations and to explore the effects of hysteresis
- ▶ PID Control software allowing users to enter values for Kp, Ki, Kd and see how the system reacts to in-putted values

Related products

- PCT60: Level Process Control System
- PCT61: Flow Process Control System
- PCT62: Temperature Process Control System
- PCT63: Pressure Process Control System

Requirements

Scale



Mains electrical supply:

110-230V, AC 50-60 Hz.

PC and Display meeting the following minimum specification:

- Processor: 1Ghz or faster
- RAM: 1Gb or more
- HDD Space: 1Gb
- OS: 32 or 64bit Windows 7, 8, 10 or 11
- Display: Recommended minimum (1920 by 1080) full HD

Overall dimensions

| | |
|--------|------|
| Length | 64cm |
| Width | 45cm |
| Height | 33cm |

Packed and crated shipping specifications

| | |
|--------------|---------------------|
| Volume | 0.095m ² |
| Gross weight | 12.1kg |

Ordering code

- PCT64-UK:** Servo Pendulum Control System
- PCT64-EU:** Servo Pendulum Control System
- PCT64-USA:** Servo Pendulum Control System