

**PCT  
SERIES**

**Flow Control - PCT61**

Flow process control is a critical aspect of various industries, including chemical, petrochemical, manufacturing, and food production.

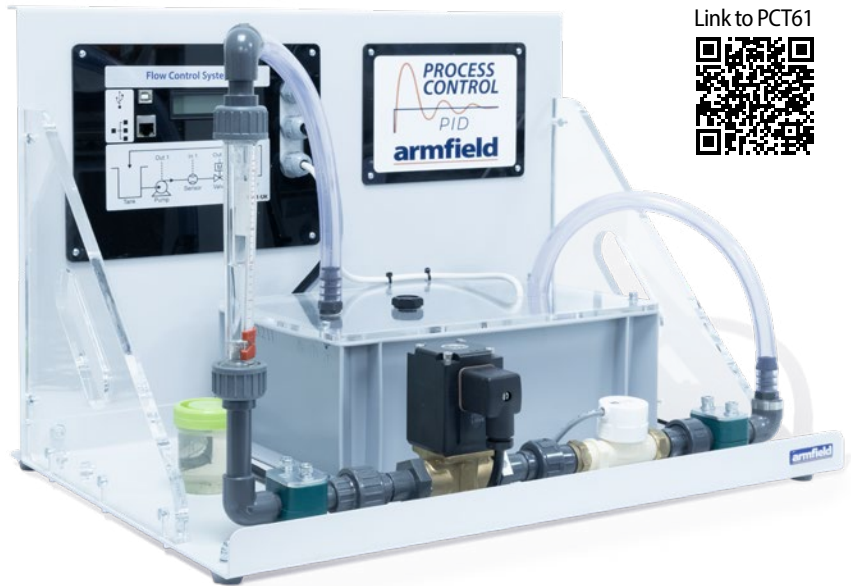
Students who understand flow control principles are better prepared for careers in these fields.

Proper flow control is essential for optimizing production processes. Students learn how to regulate the flow of materials or fluids in a way that minimizes waste, maximizes product quality, and improves overall process efficiency.

The PCT61 Flow control system introduces students to fundamental control concepts, such as feedback control, proportional-integral-derivative (PID) controllers, and closed-loop control systems.

The Flow system consists of a water tank, variable speed pump, a turbine type flow sensor, an electrically operated proportional valve and a variable area flow meter (rotameter).

This allows students to adjust the flow rate via the pump speed and the valve opening to develop a PID based control system.



Link to PCT61



**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

**Related products**

- PCT60: Level Process Control System
- PCT62: Temperature Process Control System
- PCT63: Pressure Process Control System
- PCT64: Servo Pendulum Process Control System

**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**

**PCT61 Flow Control Process**

A flow control process trainer, comprising:

- ▶ 4mm x 1.5mm Wall clear PVC tube (300mm)
- ▶ 24V PSU 60w 2.5a
- ▶ Flow process control assembly
- ▶ Barley pot for process control
- ▶ 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

**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
<b>Packed and crated shipping specifications</b>	
Volume	0.095m <sup>3</sup>
Gross weight	12.1kg

**Ordering code**

- PCT61-UK:** Flow Control System
- PCT61-EU:** Flow Control System
- PCT61-USA:** Flow Control System