

**PCT
SERIES**

Temperature Control - PCT62

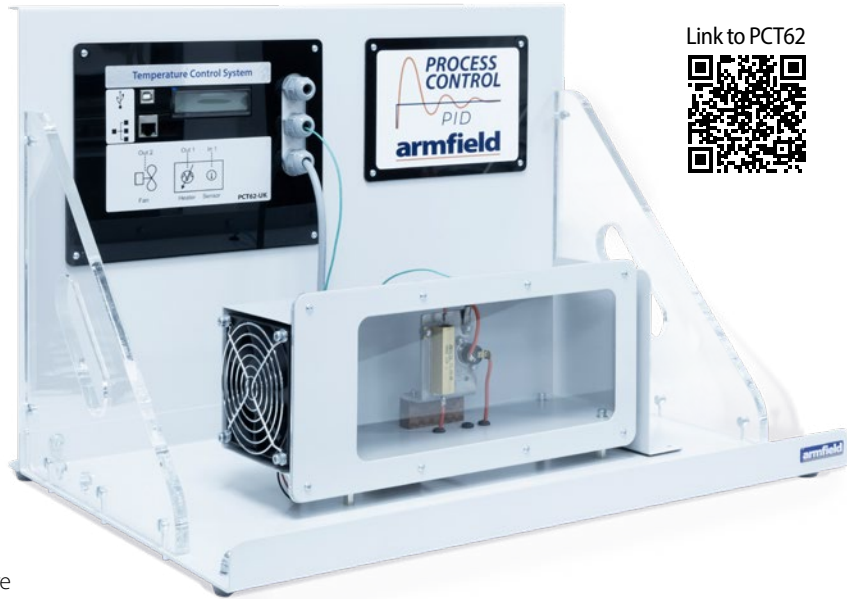
Temperature control is a critical aspect of many industries, including chemical, pharmaceutical, food and beverage, manufacturing, and HVAC (heating, ventilation, and air conditioning). Understanding temperature control is crucial for students pursuing careers in these industries.

Proper temperature control can help industries reduce energy consumption and operating costs. Students learn how to optimize temperature control systems to minimize energy waste and environmental impact.

The Armfield PCT62 temperature control system introduces students to fundamental control concepts, such as feedback control, proportional-integral-derivative (PID) controllers, and closed-loop control systems.

The temperature process control system includes a heated plate within a duct and a thermocouple. A fan at one end of the duct blows ambient air over the block, to change the control conditions and provide a disturbance to the system.

The system allows users to adjust the heater power and the air flow rate to develop a PID based control system then adjust these parameters to achieve the required time/temperature change profile for the system in response to step changes in system requirements.



Link to PCT62



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

PCT62 Temperature Control Process
A temperature control process trainer, comprising:

- ▶ 24V PSU 60w 2.5a
- ▶ Pressure process 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
- PCT63: Pressure Process Control System
- PCT64: Servo Pendulum Process Control System

Requirements	Scale
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid white; padding: 2px;">PC</div> <div style="border: 1px solid white; padding: 2px;">USB</div> <div style="border: 1px solid white; padding: 2px;"> </div> </div>	
<p>Mains electrical supply: 110-230V, AC 50-60 Hz.</p> <p>PC and Display meeting the following minimum specification:</p> <ul style="list-style-type: none"> - 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 ³
Gross weight	12.1kg

Ordering code

- PCT62-UK:** Temperature Control System
- PCT62-EU:** Temperature Control System
- PCT62-USA:** Temperature Control System