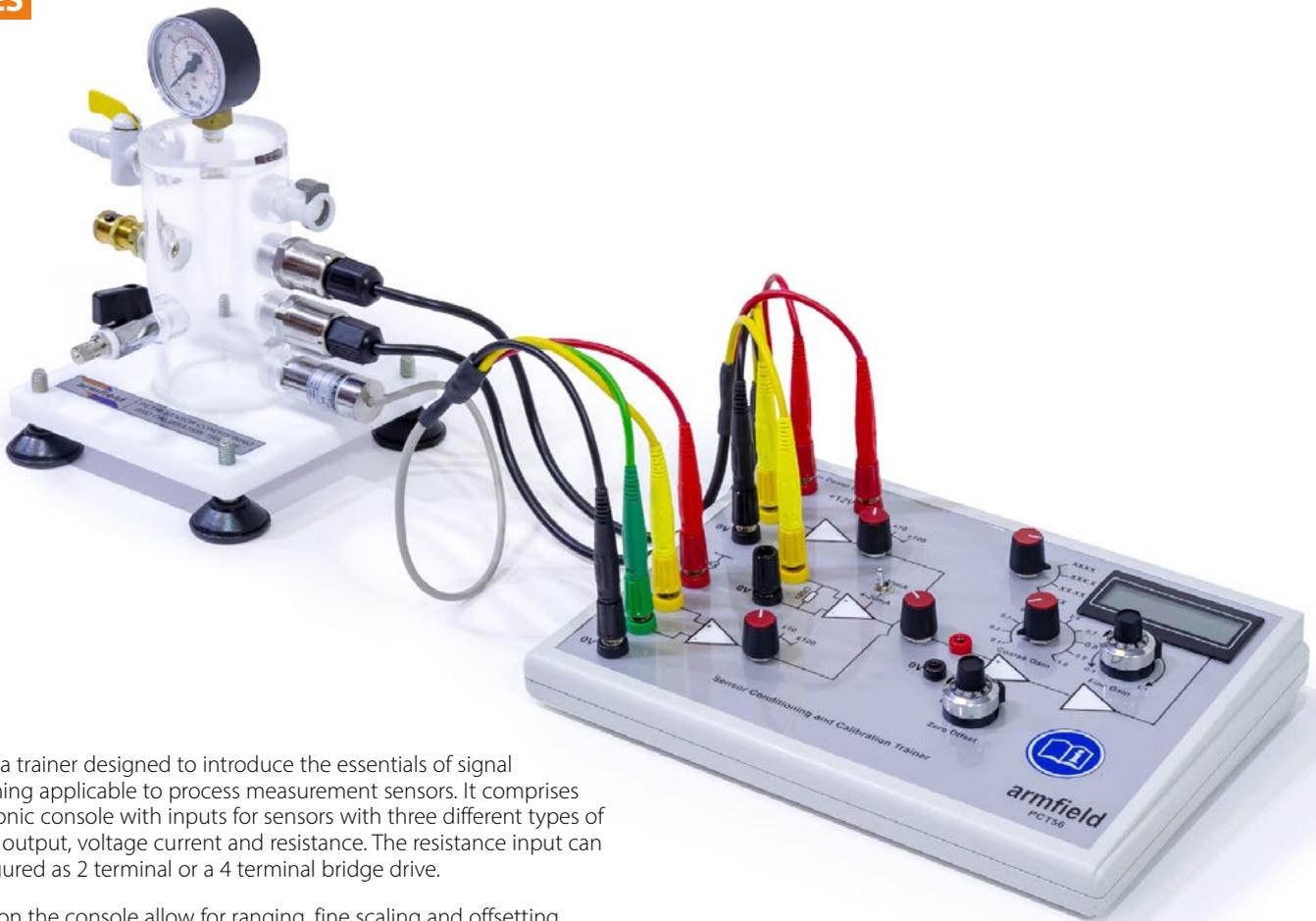


## Sensor Conditioning and Calibration Trainer - PCT56



PCT56 is a trainer designed to introduce the essentials of signal conditioning applicable to process measurement sensors. It comprises an electronic console with inputs for sensors with three different types of electrical output, voltage current and resistance. The resistance input can be configured as 2 terminal or a 4 terminal bridge drive.

Controls on the console allow for ranging, fine scaling and offsetting of the measured values, the output being displayed on a 3.5 digit LCD display. Terminals allow the voltages to be monitored at each stage (voltmeter required). Thus many different sensors with different electrical outputs can be investigated and calibrated on this equipment.

For training purposes, the PCT56 is supplied with three pressure sensors of the same range, but different electrical outputs, plus a simple pressure vessel which can be pressurized using a hand pump.

The pressure vessel also incorporates a fitting for a reference instrument, such as the Armfield H12-8 digital pressure meter. The calibration vessel is fitted with a direct reading Bourdon gauge to give continuous indication of pressure inside the vessel for safety purposes.

### Ordering specifications

#### PCT56 Sensor Conditioning and Calibration Trainer

An electronic console and accompanying calibration vessel designed to demonstrate the principles of signal conditioning applicable to sensors used in process movement:

- ▶ Voltage input ranges from 0-50mV to 0-5V
- ▶ Current inputs, 0-20mA, 4-20mA
- ▶ Scalable resistance and bridge circuit input
- ▶ Gain and offset adjustment controls
- ▶ Supplied with three 0-1 bar pressure sensors, one voltage output, one current output and one resistance output
- ▶ Includes pressure vessel and hand air pump to generate test pressures for the sensors

### Requirements

PC USB

### Scale



#### Mains electrical supply:

110 to 240 V, 50 or 60 Hz.

(Note, the units are supplied with: IEC leads to suit European and UK 230V, 50Hz outlets and USA 115V, 60 Hz outlets.)

### Overall dimensions

Length	0.450m (total)
Width	0.200m
Height	0.225m

### Packed and crated shipping specifications

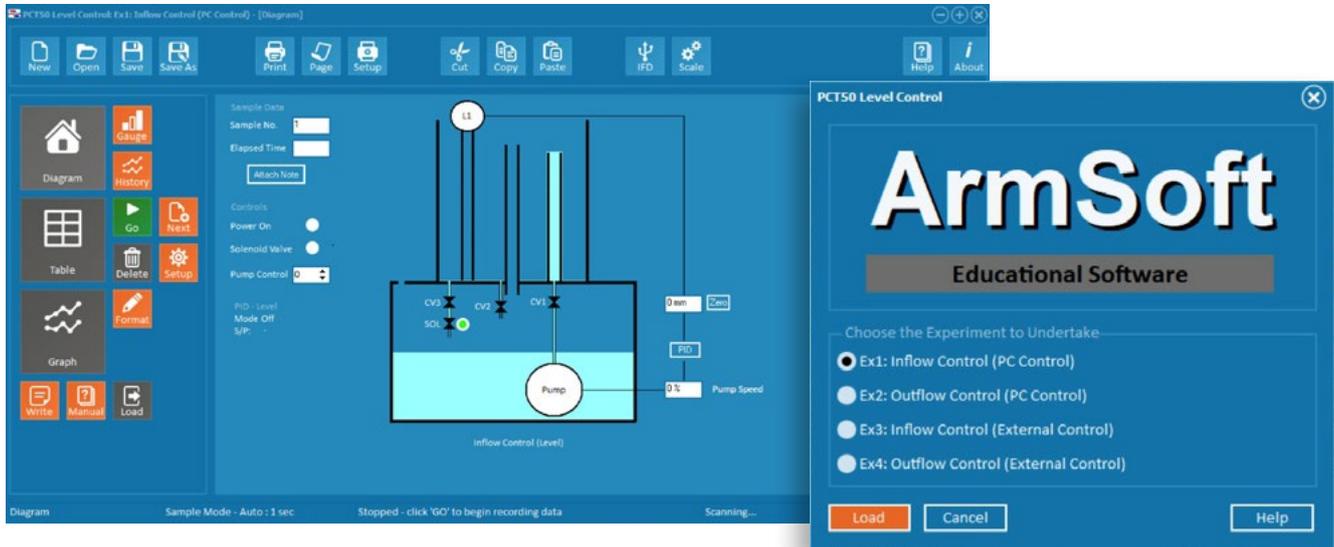
Volume	0.12m <sup>3</sup>
Gross weight	10kg

### Ordering code

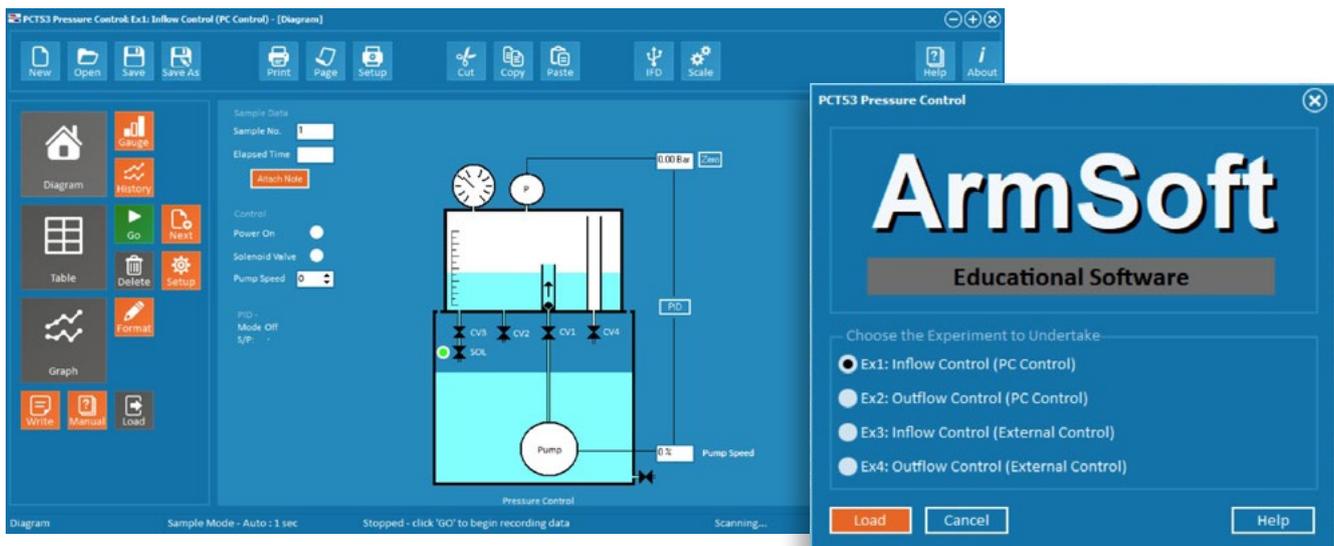
PCT56

## SOFTWARE AND INTERFACING FOR THE ESSENTIALS OF PROCESS CONTROL UNITS

Each process is supplied complete with software that allows it to be controlled using a Windows PC via a USB connection. The effect of making changes to the system or to the controller configuration can be quickly investigated by applying repeatable disturbances or step changes to the process. Comparison of the responses obtained with different control settings clearly demonstrates the need for correct matching of the controller to the system characteristics. Another fundamental aspect of process control is an understanding of sensors and how they are calibrated. This is demonstrated by a sensor calibration apparatus designed specifically to demonstrate this subject.



Armfield proprietary software including diagrammatic real-time display. Pressing the load button allows the operator to select alternative experimental options.

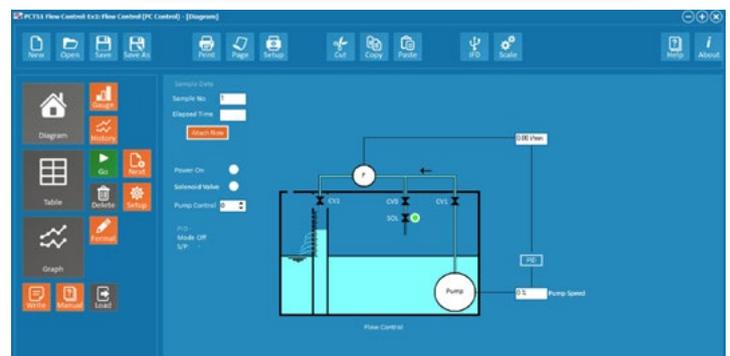


### Software

Primarily computer controlled the ArmSOFT software demonstrates a real time diagrammatic display with readings of the relevant sensor outputs and controls the system inputs. The manual on/off time proportional and PID loops can be configured.

The ArmSOFT software enables the operator to control the pump speed and temperature 0 to 100%. Feedback from the sensors is then displayed in real time for the end user with simultaneous data-logging.

The data trend is also displayed graphically in real time and can be exported to another platform such as Excel for further analysis.



### Knowledge base

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- > 50 years' providing engaging engineering teaching equipment

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