

Process Control Training System

PCT-3000



Introduction

PCT-3000 Process Control Training System are designed & produced by based on on-spot investigation on education & training, extensive opinions & advice of scholars & experts on education, and reference & absorption of advanced teaching thoughts abroad. This series of products have filled up the blank of these products in our country, and have been most updated training system for universities of "Process control" to learn and study relative theories & experiments, and for intermediate & senior technicians' technique grade appraisal tests.

More than 30 combinations of regulation systems can be made on it for experiments & study on [temperature](#), [pressure](#), [flow](#), [level constant-value regulation system](#), and complicated regulation systems of [ratio](#), [balancing](#), [split-range](#), [cascade](#), [feed forward](#), [3-stroke](#), [selection](#) etc, so it is suitable for the experimental teaching of these courses in "Automation" such as "Detection & measurement technique", "Self-control system", "Self-control instruments", "Computer control", and "Intelligent control" etc.

Structure:

Two parts: controlled objects and controller panel.

Features:

1. The regulated parameters include four parameters in thermodynamics engineering: flow, pressure, level, and temperature.
2. The execution organs include: electric (or pneumatic) regulation valve instrumental execution organs and the execution organs of power drag such as frequency converter, thyristor phase-shift regulator etc.

3. The regulation system has the set step disturbance of the regulator; it can generate all external disturbances through electromagnetically operated valve & manual operation ball valve.

4. Each regulated parameter in different power supplies (e.g. pump or tap water), different executors (e.g. regulation valves or adjustable frequency motors), different technical paths (e.g. series pressure regulation or parallel pressure regulation) can deduce different regulation loops, which is favorable to the comparison & discussion on the advantages & disadvantages of a variety of regulation programs. More than 20 simple regulation systems are available for only four parameters in thermodynamics engineering.

5. Correlated interference between some detection signals and executors has been set in controlled object, experimenters are demanded to decouple parameters of the regulators in former independent regulation systems and to be able to compare these regulation systems with their complicated regulation systems.

6. The experiments of complicated systems such as ratio, feed forward, cascade, balancing, split-range, selection and so on can be carried out on this equipment.

7. Controlled object can form different regulated objects by the switch of manual valve groups, the instruments on operation table, and different connections between electrical experiments board and signal board can compose different regulation loops, the combination of regulated objects and regulation loops can deduce diversified complicated regulation systems, which lets students carry out a same experiment in different ways, diversifies the kinds of experiments, decreases the repetition, and improves students' problem analysis & solving ability in practical regulation systems.

8. This equipment can be integrated with a computer real-time process simulation system to form a bigger virtual process control experiments system comprising digit simulation & physical simulation.

9. The 14 meters on operation table, with electrical experiments boards, transform metrical signals, electrical signals to the experiments board to provide students with a platform for independent design & regulation loop connection, so the product is more suitable for teaching, study & development in universities & colleges, scientific research & study institutions, as well as technical trainings and technique grade appraisal tests.

10. Matched with diversified accessories selectable to carry out more complicated experiments.

11. Diversified control modes selectable (e.g. intelligent instruments control, computer control, PLC control, DCS control, field bus control and so on).

The containers, valves, pumps are made of rustless steel. The pipes are domestic auto locking PVC Cu-plated plastics & AL-plated plastics combination pipes to eliminate rust. No leakage. The pumps operate steadily with little noise. The maintenance is very convenient.

Experiments:

1. Level sensor adjustment experiment (Zero-deviation & range adjustment).

2. Measurement and drawing of characteristic curve of controlled object.

3. Experiment on single-loop system of the 4 parameters of thermodynamics engineering (Level control, PID parameters adjustment).
4. Experiments of complicated control system as ratio, feed forward, cascade, balancing, split-range control systems etc.
5. Select different configurations to complete all kinds of complicated experiments.