**SCIENTICO INDIA**
Manufacturer & Exporter · Ambala, Haryana, India

**PRODUCT DATA SHEET**
Catalogue reference for product evaluation

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# Process Plant Trainer | ProzessiX PX-03

**Category:** Process Engineering Technology · **Order Code:** PX-03 · **Country of Origin:** India

## Product Overview

The Process Plant Trainer is a fully integrated miniature industrial process system designed to study measurement, dynamics, and advanced process control strategies. Made by Scientico India, ISO 9001:2015 certified, and supplied with a calibration certificate and operation manual.

View this product online: https://scienticoindia.com/product/process-plant-trainer-prozessix-px-03/




**Request a model-specific quotation**
Include quantity and delivery country.

## Technical Specifications

### General Process Capabilities

| Parameter | Specification |
|---|---|
| Control Variables | Level, Flow Rate, Temperature, pH, Conductivity |
| Control Strategies | Manual, Single-loop, Cascade, Multi-loop, PID, PC-based DDC |
| Working Medium | Water |
| PC Interface | USB connection for simultaneous signal monitoring |

### Mechanical & Process Components

| Component | Specification |
|---|---|
| Feed System | Peristaltic pump |
| Water Heating Unit | Peristaltic pump with heater |
| Water Cooling System | Integrated cooling arrangement |
| Heat Exchanger | Plate type with holding tube |
| Heating Vessel Capacity | 5 liters |
| Process Vessel Capacity | 5 liters |
| Product Feed Pump Speed | Variable control |
| Heating Fluid Pump Speed | Variable control |

| Component | Specification |
|---|---|
| Heater Element | Coil type, 1000 W, 220 V AC |
| Solenoid Valves | 24 V DC |
| Float Switch | Drum type |

### Instrumentation

| Sensor | Specification |
|---|---|
| Temperature Sensors | 4 × K-type thermocouples |
| Flow Sensor | Turbine type, Max 1200 mL/min |
| Conductivity Sensor | 0–20 mS/cm |
| Level Sensor | 0–200 mm |
| Pump Max Rate | 2200 mL/min |

### Electrical & Control

| Feature | Specification |
|---|---|
| Heater Power | Measurement and control available |
| Digital Inputs/Outputs | From switches and to solenoid valves |
| Electrical Console | Built-in display for sensor outputs and signal conditioning |
| Software | IT-5208SW DAQ software |
| Software Platform | National Instruments™ LabVIEW™ environment |
| OS Compatibility | Windows™ |

### Scope of Delivery

- 1 Experimental module
- 1 Instruction manual

## Key Features

### Key Features

- Miniature industrial process plant for control engineering training
- Study of single-loop, cascade, and multi-loop control strategies
- PC-based data acquisition and direct digital control capability
- Industrial PID controller implementation
- Plate heat exchanger with integrated heating and cooling
- Four temperature measurement points for thermal profiling
- Level, flow, conductivity, and pH control capability
- Alarm-activated diverter valve for disturbance studies
- Investigation of dead time and dynamic process behavior
- Screen-based mimic diagrams for process visualization
- Simultaneous signal monitoring via USB interface

### Applications

- Chemical engineering control laboratories
- Process instrumentation and automation training
- Industrial control strategy development
- Study of cascade level and temperature control

- Verification of PID tuning techniques
- Process dynamics and stability analysis
- Pilot plant control simulation and supervisory control training

**Construction & System Design**

The Process Plant Trainer is designed as a compact, bench-mounted pilot plant system integrating process vessels, heating and cooling units, instrumentation, and a centralized electrical console.

The plate heat exchanger with holding tube enables realistic heat transfer studies. Peristaltic pumps provide controlled feed and heating fluid circulation. The heating element is coil-type with controlled power input, enabling temperature regulation experiments.

Instrumentation includes four K-type thermocouples, turbine flow sensor, conductivity sensor, and level measurement devices. Solenoid valves and digital I/O facilitate automated control and sequencing experiments.

All signals are routed through a control console providing electrical interfacing and signal conditioning. A built-in display shows sensor outputs, and signals are available for external monitoring and PC-based control. The system supports advanced DAQ software integration for data logging, monitoring, and closed-loop control implementation.

The trainer is engineered for repeated academic use, ensuring durability, operational safety, and clear demonstration of industrial control principles.

**Export & Supply Capability**

The ProzessiX PX-03 Process Plant Trainer is manufactured by SCIENTICO for domestic and international supply. The system is suitable for export to engineering universities, R&D laboratories, technical institutions, and industrial training centers.

Standard delivery includes the experimental module and detailed instruction manual. The unit is prepared for secure packaging and international transportation. Documentation support is provided for installation, commissioning, and academic integration.

## Ordering & Delivery

- Send the product name, quantity, delivery country and destination with your enquiry.
- Production schedule, freight, payment terms and export documents are confirmed in the written quotation.

## Frequently Asked Questions

Q1. What is the main purpose of the Process Plant Trainer?
The trainer is designed to simulate a real industrial process plant, enabling study of process dynamics, measurement systems, and advanced control strategies including PID and cascade control.

Q2. What control strategies can be implemented on this system?
Users can implement manual control, single-loop feedback control, cascade control, multi-loop control, direct digital control via PC, and industrial PID control strategies.

Q3. How does the system support cascade control experiments?
Cascade control can be implemented for level and temperature loops, where a primary controller adjusts the setpoint of a secondary controller, allowing study of improved disturbance rejection.

Q4. Can students analyze process dynamics and dead time?
Yes. The system allows measurement of step responses, study of dead time effects, and analysis of variable interactions such as flow affecting temperature.

Q5. Is the trainer suitable for industrial automation training?
Yes. With digital inputs/outputs, solenoid valves, PID control capability, and PC-based supervisory control, the system is suitable for advanced industrial control training.

Q6. What software is used for data acquisition and control?
The trainer uses IT-5208SW DAQ software developed in the National Instruments™ LabVIEW™ environment and is compatible with Windows™ operating systems.

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