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PRODUCT DATA SHEET
Catalogue reference for product evaluation

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Universal Process Control Trainer | Prozessi PX 29

Category: Process Engineering Technology · **Order Code:** PX 29 · **Country of Origin:** India

Product Overview

The Universal Process Control Trainer Prozessi PX 29 teaches advanced process control using DCS architecture with over 25 configurable experiments. Features Honeywell HC900 controller with 8 control loops, four transmitter types, dual control valves, patch board configuration and 1 HP compressor with diaphragm pump. Supports single-loop, cascade, feedforward, ratio and MIMO control. Includes Hybrid Control Designer and SCADA software. Frame assembly 1150L x 800W x 1900H mm.

View this product online: https://scienticoindia.com/product/universal-process-control-trainer-prozessi-px-29/



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

Technical Specifications

Universal Process Control Trainer Prozessi PX 29 — Technical Specifications

Specification	Value
Product Code	Prozessi PX 29
Control Unit	Honeywell HC900, AI 8, AO 4, DI 16, DO 16, 8 control loops
Communication	RS232, RS485, Ethernet
Software	Hybrid Control Designer, SCADA supervisory software
Temperature Sensors	PT100 RTD, Range 0-100°C (2 units)
Temperature Transmitter	PT100 2-wire, 0-100°C, 4-20 mA (2 units)
Flow Transmitter	DP transmitter, 0-200 mmH_2O, 4-20 mA, Square root
Level Transmitters	DP transmitter (0-500 mmH_2O), GPT (0-600 mmH_2O), 4-20 mA
Pressure Transmitter	GPT, 0-2.5 bar, 4-20 mA
Position Transmitter	Electronic, 4-20 mA output
I/P Converters	Input 4-20 mA, Output 3-15 psig (2 units)
Control Valves	Pneumatic, 1/2" size, 3-15 psig, Linear and Equal % (2 units)
Rotameter	40-400 LPH
Compressor	1 HP, 3.8 CFM, 10 kg/cm² with 45L tank

Specification	Value
Diaphragm Pump	Positive displacement, 200 LPH capacity
Heater	Electrical, 2 coil, 3 KW capacity
Overall Dimensions	1150L x 800W x 1900H mm

Technical Data

Transmitter and Sensing Components

Component	Specification
RTD Sensor PT100	Range 0-100°C, Direct immersion
Temperature Transmitter	2-wire, 4-20 mA output, Range 0-100°C
Flow DP Transmitter	Range 0-200 mmH_2O, Square root extraction
Level DP Transmitter	Range 0-500 mmH_2O, Linear output
Level GPT Transmitter	Range 0-600 mmH_2O, 4-20 mA
Pressure Transmitter	Range 0-2.5 bar, 4-20 mA
Position Transmitter	Electronic, 4-20 mA feedback

Actuation and Control Components

Component	Specification
I/P Converter (2 units)	Input 4-20 mA, Output 3-15 psig
Control Valve (2 units)	Pneumatic, 1/2" size, 3-15 psig, Linear and Equal % characteristics
Valve Positioner	Electronic feedback, 4-20 mA
Solenoid Valve (2 units)	2/2-way normally closed, 1/4" BSP
Heating Controller	Proportional power controller (SSR), 4-20 mA input
Heater Element	Electrical, 2 coil, 3 KW capacity

Pumping and Pneumatic System

Component	Specification
Centrifugal Pump	Fractional horsepower
Diaphragm Pump	Positive displacement, 200 LPH, VFD driven
Air Compressor	1 HP, 3.8 CFM, 10 kg/cm^2, 45L receiver tank
VFD Drive	Single phase 200 VAC input, 1.1 A, 3-phase AC output

Flow Measurement Devices

Device	Range/Specification
Rotameter	40-400 LPH direct reading
Orifice Meter	Differential pressure measurement
Venturi Meter	Differential pressure measurement

Key Features

Key Features

- Universal Process Control Trainer: over 25 configurable experimental setups

- Honeywell HC900 DCS controller with 8 control loops and 36 configurable I/O
- Patch board allows rapid experiment reconfiguration
- Four transmitter types for temperature, flow, level and pressure measurement
- Dual I/P converters and dual control valves for multi-loop control
- 1 HP compressor with 45L receiver and diaphragm pump with VFD
- Direct access to transmitters and control elements via patch board
- Single-loop, multi-loop, cascade, feedforward, ratio and MIMO control capability
- Hybrid Control Designer software with supervisory SCADA package

Experiments

- Study of I/P converter calibration and characteristics
- Study of differential pressure transmitter response
- Study of control valve characteristics and valve coefficient
- Study of valve positioner operation and tuning
- Rotameter calibration
- Orifice meter coefficient of discharge
- Venturi meter coefficient of discharge
- Interacting and non-interacting system step response
- Temperature control of direct heating process
- Flow control of pump and process outlet
- Level control by inlet and outlet flow manipulation
- Pressure control of closed tanks (air and water)
- Cascade control configurations (Level+Flow, Temperature+Flow, Level+Pressure)
- Feedforward control and feedforward plus feedback control
- Ratio control of flows
- Three-element and interactive control
- MIMO pressure and level control of interactive loops
- PLC study and control via DCS

Construction and Design

The Universal Process Control Trainer Prozessi PX 29 is assembled as modular subassemblies on a frame (1150L x 800W x 1900H mm). A heating tank module contains a 3 KW heater and two PT100 RTD sensors. A control panel module houses the Honeywell HC900 controller, power supplies and a jack plug patch board for experiment configuration. An I/P converter module contains two I/P converters and pressure gauges. A water supply module includes a centrifugal pump, 200 LPH diaphragm pump with VFD, supply tank, rotameter and solenoid valves. A control valve module holds two pneumatic valves with positioners and position transmitters. Process tanks include an SS pressure tank with pressure transmitter and a level tank with both DP and GPT level transmitters. Separate flow sensing elements (orifice, venturi, DP transmitter) and a 1 HP compressor with 45L receiver complete the assembly. The patch board provides direct access to all transmitters and control points for external controller integration.

Software

Hybrid Control Designer allows FBD (function block diagram) development and download to the HC900 controller. Supervisory SCADA software provides data access, trend plots, data logging, printing and data export. Pre-configured templates support manual and auto tuning, Ziegler-Nichols tuning, Bode plot stability analysis and multiple control strategies.

Scope of Delivery

- Universal Process Control Trainer Prozessi PX 29 complete assembly with all modules
- Honeywell HC900 hybrid controller with 8 control loops
- Heating tank with 3 KW heater and RTD sensors (2 units)
- Process tanks (pressure and level) with transmitters
- Two pneumatic control valves with positioners
- Two I/P converters with regulators and gauges
- Rotameter, orifice meter and venturi meter
- 1 HP air compressor with 45L receiver tank

- Diaphragm pump with VFD drive
- Centrifugal pump and solenoid valves
- Patch board with jack plugs and sockets
- Hybrid Control Designer software
- SCADA supervisory control software
- Temperature, flow, level and pressure transmitters
- Position transmitter and electronic feedback
- Proportional heating controller
- Power supplies and distribution panel
- Interconnecting piping and electrical cabling
- User documentation and 27 experiment procedures

Optional Accessories

- Extended patch board configuration kit
- Additional I/P converter modules
- Data logging and trending software upgrade
- PLC interface module for external controller study

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: How many experiments can be configured on the Universal Process Control Trainer?
A: Over 25 different experimental setups are possible using the patch board, covering single-loop, multi-loop, cascade, feedforward, ratio and MIMO control strategies.

Q2: Can external controllers be connected to the Universal Process Control Trainer?
A: Yes, the patch board provides direct access to all transmitters and control elements, allowing connection of external PLCs, DCS systems or laboratory controllers.

Q3: What control methods are supported?
A: The Universal Process Control Trainer supports on/off, proportional, PI, PID and PLC control with manual or auto tuning, open and closed loop tuning, and Bode plot stability analysis.

Q4: What types of processes can be studied?
A: Temperature, flow, level and pressure control in single and multi-loop configurations including cascade, feedforward, ratio and three-element control topologies.

Q5: Is software included?
A: Yes, Hybrid Control Designer software and SCADA supervisory control software are included with data logging, trend plotting, printing and data export features.

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