

H-ICS-7617 Instrument and Process Control Trainer

Purpose

The Hampden **Model H-ICS-7617** Instrument and Process Control Trainer was designed to provide hands-on training for industrial process automation.

Description

The system consists of a clear process tank, centrifugal pump and other instrumentation mounted on a mobile carrier. The trainer provides measurement and/or control of flow, temperature and level (pressure transducer and adjustable level switches), with both internal control and external access.

Specifications

Construction:

Mobile carrier and control panels are all steel construction finished in textured tan and instrument white, respectively.

Nomenclature:

2-ply brown-white-core engraved phenolic secured to the panel with self-tapping screws.

Plumbing:

All air, water, and drain fittings are Parker quick-disconnect type.

All piping shall be clear tubing.

Casters:

Two stationary, two swivel with locks

Process Control:

Digital, single system microcontroller (PID) with RS-485 communications port.

Components:

- Digital Flow Indicator and Processor
- Pressure Transducer with Transmitter - Level
- Pressure Alarm and Light
- Alarm Reset Switch
- Pressure Switch

Model H-ICS-7617 Instrument and Process Control Trainer

Dimensions: 30"H x 30"W x 20"D,
Shipping Weight: 400 lbs.

- Control Valve with Current to Pneumatic Valve Positioner
- High Level Float Switch
- Low Level Float Switch
- Resistance Temperature Detector (RTD) with Transmitter
- Pump Speed Control
- Input/Output Jacks
- Air Regulator with Gauge
- Control Switches
- Set Point Control
- PLC Interface Receptacles, Hampden HR-1S
- Main Circuit Breaker with Ground Fault Interrupter Protection
- Power Supplies (2)
- Solenoid Valves (3)

Services Required

Power:

120V AC 1 ϕ 60Hz via 3/c power cord.

Air:

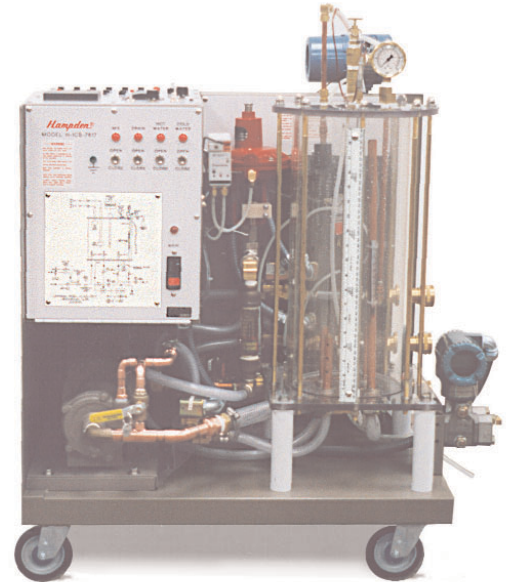
100 PSI @ 2 SCFM

Water:

Cold - normal cold water service
Hot - 120-140°F

Drain:

2 GPM minimum outlet flow



Options

Model H-ICS-7617-CCS

Computer Control System, IBM compatible with data translation hardware and data acquisition program

Model H-ICS-7617-PO

Printer

Model H-ICS-7617-CC

Computer Workstation

Model H-ICS-7617-PLC-AB

Industrial Programmable Logic Controller, PLC-5/15 complete with terminal, software and I/O modules

Model H-ICS-7617-FT

Ten instructor-insertable faults

All Hampden units are available for operation at any voltage or frequency

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H-TCD-1 Temperature Control Demonstrator

Purpose

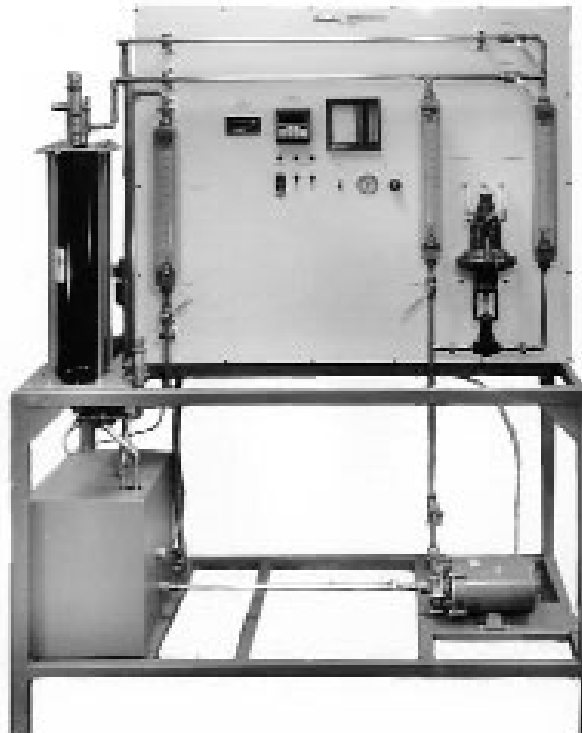
The Hampden **Model H-TCD-1** Temperature Control Demonstrator has been designed to demonstrate the principles of temperature control utilized in chemical and process heat exchangers. The student will be able to operate as well as observe the heat transfer process occurring in the heat exchanger and evaluate its performance by monitoring temperature, flow and control valve position.

Description

The Hampden **Model H-TCD-1** circulates heated process water from a storage tank through a water-cooled heat exchanger and returns back to the storage tank. This process is controlled by a three-mode microprocessor based controller which monitors and maintains the process fluid temperature leaving the heat exchanger via control of a regulating valve. The process is monitored by a two channel miniature recorder with visual color ribbon displays and two pen chart. This recorder records the heat exchanger exit temperature as well as the position of the control valve. Thermometer wells are incorporated for measurement of the heat exchanger primary process fluid as well as primary and secondary cooling fluids. Rotameters are used in the heat exchanger cooling line and the primary and secondary process line. The process fluid in the storage tank is maintained using an adjustable temperature control.

This system can be operated both automatically or manually. System changes can be made by changing the set point at the controller, changing the process fluid temperature or changing the process and or cooling flow rates.

The demonstrator consists of a 1 inch mechanical tube frame with levelers and control panel completely factory assembled and tested.



Dimensions: 60"H x 58"W x 30"D
Weight: 900 lbs (409Kg)

Experiment Capabilities

The experiments covered include:

- Heat Transfer
- Energy Balances
- Manual Control
- Automatic Control
- Operation of a feedback control loop
- Control Elements

Services Required

Power:

220V AC-1 ϕ -50/60Hz
30 ampere

Air:

30 PSI (200KPA)

Water:

5 gallons per minute at 30 PSI
20 liters per minute at 200 KPA

Drain:

Floor or sink

All Hampden units are available for operation at any voltage or frequency

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