

Product Name :
Astra Scientific Computerized Temperature Control Trainer

Product Code :
MeasurementLabs0005



Description :

Astra Scientific Computerized Temperature Control Trainer

Technical Specification :

The Trainer provides a comprehensive experimental introduction to the fundamentals of control engineering using an example of temperature control.

A circulating pump delivers water within a closed circuit. A hand-operated valve can adjust the flow rate of water. The loop also contains a screw-in heater, a heat exchanger with fan, and three integrated thermocouples for temperature measurement. Dead times can be represented by the use of different lengths of process delay. A thyristor power controller is used as the actuator. The controller used is a state-of-the-art digital industrial controller. It can be configured as a continuous or a switching device, and can activate the heater via the actuator and / or the fan. The controlled variable X and the manipulating variable Y are plotted directly on an integrated 2-channel line recorder. Alternatively, the variables can be tapped as analogue signals at lab jacks on the switch cabinet. This enables external recording equipment, such as an oscilloscope or a flatbed plotter, to be connected. Process control software is optionally available.

FEATURES:

- Experimental introduction to control engineering using an example of temperature control
- Construction of the system with components commonly used in industry
- Digital controller with freely selectable parameters: P, I, D and all combinations

SPECIFICATION:

Pump, 3-stage

- Power consumption: 70W
- Flow rate: 3,6m³/h
- Head: 4m

Screw-in heater: 2kW

Heat exchanger: approx. surface area 2,8m²

Fan

- Power output: 250W
- Flow rate: 780m³/h
- Differential pressure: 430Pa
- Speed: 2880min⁻¹

Thermocouple: type J: 0...200°C

Thyristor power controller max. Load current: 25A

Line recorder

- 1x 4...20mA, 1x 0...20mA
- Feed rate 0...7200mm/h, stepped

Controller

- Process variables X, Y as analogue signals: 4...20mA
- Power required for operation

230V, 50Hz, 1 phase

230V, 60Hz, 1 phase



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