

**Product Name :**  
Fault Finding in Control Systems

**Product Code :**  
AR515



**Description :**

Fault Finding in Control Systems

**Technical Specification :**

**Fault Finding in Control Systems**

A circuit with a collecting tank, pump and graduated tank is provided for control of level and flow rate. A pneumatic control valve is used as the actuator. There is a valve in the tank outlet to generate a disturbance variable in level control. Cascade control is possible whereby the level in the tank is controlled by way of the flow rate.

Two circuits are used in the control of the temperature. A refrigeration system cools the water in the collecting tank. A pump circulates the water via a heat exchanger (cooling circuit). A heater heats the water in the graduated tank. Another pump also circulates the warm water via the heat exchanger. In the heat exchanger the water in the cooling circuit is heated. The controlled variable is the temperature of the water in the cooling circuit after heating in the heat exchanger. The actuator is the pneumatic control valve which adjusts the flow rate of the warm water. Cascade control is also possible to control the temperature.

Control of level, flow rate, temperature and cascade control

Main circuit with collecting tank, graduated stirred tank with heater, pneumatic control valve and centrifugal pump

Cooling circuit with pump, heat exchanger and rotameter

Refrigeration system and pump to cool the water in the collecting tank

Pneumatic control valve in main circuit as actuator for all controls

Sensors for the measurement of the controlled variables; level, flow rate and temperature

2 parameter is able industrial controllers

6 pushbuttons for fault simulation

PLC to monitor safety devices

Process control software via PCIe under Windows 7, 8.1, 10 including PC1 Computer-System with 21" TFT-Monitor Win 10 engl.

Technical Data:

Tanks

Stirred tank with scale: 7l

Collecting tank: 90l

Main circuit centrifugal pump

Flow rate: 75l/min

Head: 20m

2 pumps, cooling circuit and refrigeration system

Flow rate: 60l/min

Head: 4m

Heater power output: 2kW

Controller parameterisable as - P, PI or PID controller

Measuring ranges

Level: 0...350mm

Flow rate: 0...1999l/h

Temperature: 0...100Â°C

230V, 50Hz, 1 phase

## Naugralabequipments

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