



EQUIPMENT FOR ENGINEERING EDUCATION

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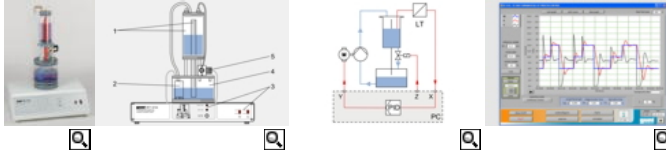
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Overviews

Products | Process Engineering | Fundamentals of Control Engineering | [RT 010](#)

RT 010 Training System: Level Control, HSI



Technical Description

This compact experimental unit offers every opportunity to learn the fundamentals of control engineering through experimentation on a level control system.

The experimental set-up is mounted in a housing which also accommodates all the electronics. The transparent level-controlled tank is fed from the storage tank with the aid of a speed-controlled pump. The liquid level is measured using a pressure sensor. The sensor output signal is sent to the software controller. The controller's output signal influences the speed of the pump motor and therefore delivery flow rate. To investigate the influence of disturbance variables, an electromagnetic proportional valve in the tank outlet can be activated by the software.

The powerful state-of-the-art software is an integral part of the training system, embodying the principle of hardware/software integration (HSI). It enables the experiments to be conducted and evaluated in a user-friendly manner. The software has network capability. The link between the experimental unit and the PC is made via a USB port.

The well-structured instructional material sets out the fundamentals and provides a step-by-step guide through the experiments.

Learning Objectives / Experiments

- fundamentals of control engineering based on the example of a level control system with integral control action
- open loop control response
- investigation of a controlled system without feedback
- effects of different controller parameters and methods on the response of the closed loop system
- recording of step responses
 - * reference variable
 - * disturbance variable
- controller optimisation
- software-based controlled system simulation
 - * comparison of different controlled system parameters

Features

- * Experimental unit with clear level control system₁
- * Extensive range of experiments on fundamentals of control engineering₁
- * State-of-the-art software for all experimental units of the RT 010 - RT 060 series, with extensive controller and recorder functions₁
- * Software-based simulation of the controlled system

Available accessories

[WP 300.09 -- Laboratory Trolley](#)

Alternative products

[RT 020 -- Training System: Flow Control, HSI](#)
[RT 030 -- Training System: Pressure Control, HSI](#)
[RT 040 -- Training System: Temperature Control, HSI](#)
[RT 050 -- Training System: Speed Control, HSI](#)
[RT 060 -- Training System: Position Control, HSI](#)
[RT 614 -- Level Control Demonstration Unit](#)
[RT 674 -- Flow / Level Control Demonstration Unit](#)

Overview

[RT 010 - RT 060 Fundamentals of Process Control](#)



Specification

- [1] experimental unit for control engineering experiments
- [2] level control process with transparent tank
- [3] speed-controlled pump
- [4] level measurement by pressure sensor
- [5] disturbance variables generated by electromagnetic proportional valve in tank outlet
- [6] tank with overflow and graduated scale
- [7] software-based controlled system simulation
- [8] process schematic on front panel
- [9] networkable GUNT software via USB under Windows Vista or Windows 7

Technical Data

Level-controlled tank
 - capacity: 1200mL
 Storage tank
 - capacity: 3700mL
 Pump
 - power consumption: 18W
 - max. flow rate: 8L/min
 - max. head: 6m
 Proportional valve: Kvs: 0,7m³/h
 Pressure sensor: 0...30mbar (0...300mm)
 Software controller configurable as P, PI, PID and switching controller
 Software
 - process schematic with controller type selection (manual, continuous controller, two- or three-point controller, programmer)
 - time functions
 - simulation function
 - disturbance variable input

Dimensions and Weight

LxWxH: 600x450x800mm
 Weight: approx. 22kg

Required for Operation

230V, 50/60Hz, 1 phase or 120V, 60Hz/CSA, 1 phase

Scope of Delivery

1 experimental unit
 1 GUNT software CD + USB cable
 1 hose
 1 handbook: fundamentals of control engineering (RT 010 - RT 060)
 1 manual for RT 010

Order Details

080.01000 RT 010 Training System:
 Level Control, HSI

 request for quotation  PDF-Download  Print

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