

RT 304

Calibration trainer



Learning objectives/experiments

- together with the accessory control loop components
 - ▶ mode of operation of control loop components: transducers, actuators, controllers
 - ▶ familiarisation with different signals: pneumatic, electrical
 - ▶ correct connection of control loop components
 - ▶ transmission behaviour of control loop components
 - ▶ calibration of manometers

Description

- **investigation of the transmission behaviour of actuators and transducers**
- **calibration of control loop components and measuring instruments using precision measuring technique**
- **various control loop components and measuring instruments available as accessories**

The calibration trainer is used to investigate the transmission behaviour of electrical and pneumatic control loop components such as transducers and control valves. Electrical and pneumatic signals can be generated to effect actuation of the individual control loop components. A precision measuring technique facilitates the recording of the output signals from the control loop components.

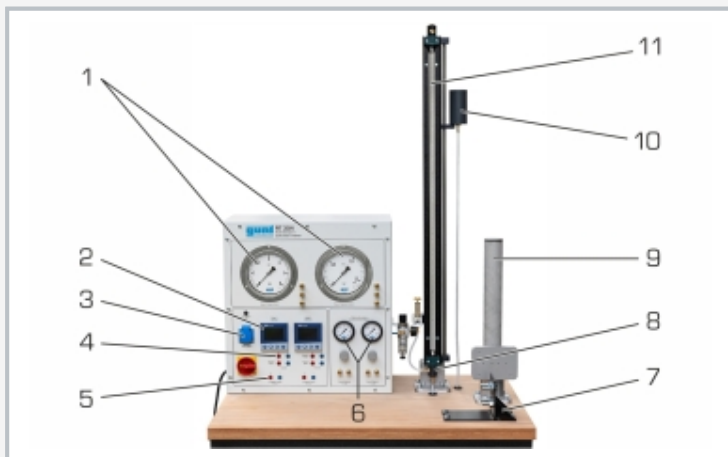
Two pressure regulators with manometers are included to generate pneumatic signals and supply the control loop components with auxiliary power. A height-adjustable tank with a level tube and scale is used to set low pressures for manometer calibration. The pressure regulators can also be used to calibrate at higher pressures.

One direct voltage source is included as auxiliary power source for components requiring an electrical supply. Direct current signals can be sent and measured with two controllers. Two precision manometers permit measurement of pneumatic output signals from control loop components.

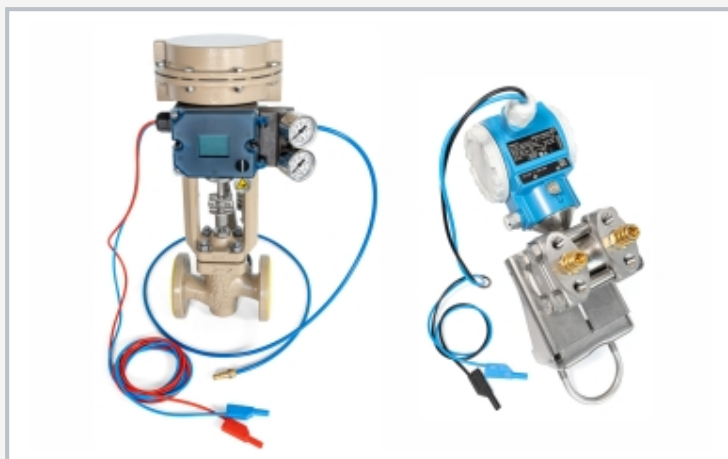
Various control loop components such as transducers, control valves and controllers are available as accessories. They are mounted on the calibration trainer and connected by way of the supplied hoses and cables.

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1 precision manometer, 2 controller, 3 230VAC connection, 4 connections for current signals, 5 DC voltage source, 6 pressure regulator, 7 fixture for control loop components, 8 connection for low pressures, 9 assembly tube for control loop components, 10 height-adjustable tank, 11 level tube with scale for low pressures



Available accessories: RT 305.03 differential pressure transmitter (right) and RT 305.05 pneumatic control valve with electro-pneumatic positioner (left)



Available accessories: RT 305.07 thermocouple type K and calibrator

Specification

- [1] investigation of transmission behaviour and calibration of control loop components and measuring instruments
- [2] sending and measuring pneumatic and electrical signals
- [3] 2 pressure regulators with manometers
- [4] height-adjustable tank and scale to set low pressures
- [5] 2 controllers to send and measure current signals
- [6] 2 DC voltage sources to supply control loop components with auxiliary power
- [7] 2 precision manometers, D=160mm
- [8] control loop components and meters available as accessories

Technical data

2 pressure regulators

- 0...1,6bar
- 0...6bar

Pressure range, height-adjustable tank

- 0...1000mm head

2 controllers

- 1 output each: 4...20mA
- 1 input each: 4...20mA

2 DC voltage sources

- each 24VDC

Measuring ranges

- pressure:
 - ▶ 0...1,6bar
 - ▶ 0...6bar

230V, 50Hz, 1 phase

230V, 60Hz, 1 phase

120V, 60Hz, 1 phase

UL/CSA optional

LxWxH: 1000x750x2150mm

Weight: approx. 110kg

Required for operation

compressed air connection: 6...8bar

Scope of delivery

- 1 trainer
- 1 set of cables
- 1 set of hoses
- 1 set of instructional material

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Optional accessories

Transducers

- RT 305.02 Pressure transmitter, electronic
- RT 305.03 Differential pressure transmitter, electronic
- RT 305.04 Current-to-pressure converter

Analogue pressure measurement

- RT 305.08 Bourdon tube pressure gauge
- RT 305.09 Diaphragm pressure gauge

Temperature measurement

- RT 305.07 Thermocouple type K and calibrator

Control valves

- RT 305.05 Pneumatic control valve with electro-pneumatic positioner
- RT 305.06 Control valve, electric

Controller

- RT 305.01 Controller, electronic

Other accessories

- RT 305.10 Tool set
- HM 150.02 Calibration of pressure gauges