

# RT 310

## Calibration station



### 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

### Description

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

The calibration station is used in the investigation of the transmission behaviour of electrical and pneumatic control loop components. 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. The supply of auxiliary power necessary for many control loop components is also provided.

Three pressure regulators with manometers are included to generate pneumatic signals. They can also be used to supply the components with auxiliary power. A power supply unit with adjustable voltage and current serves as the DC voltage source. Two switchable AC voltage sources supply auxiliary power. Two potentiometers can be used to simulate the behaviour of various devices such as resistance teletransmitters or motorized valves.

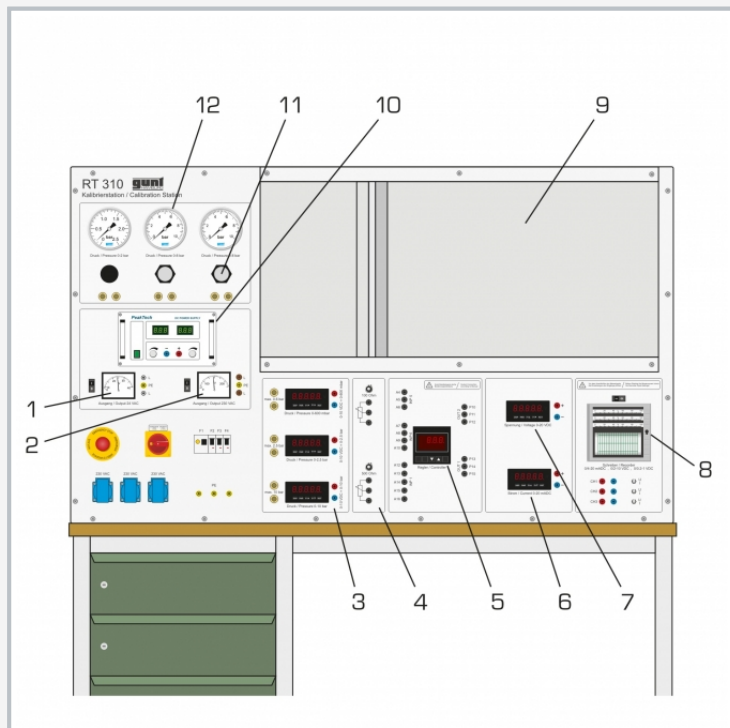
Three digital pressure gauges, a voltmeter, an ammeter and a 3-channel line recorder are provided for recording the output signals from the control loop components.

An industrial controller can be used to generate signals in the form of functions and to measure signals. It features three input channels and two output channels which are freely configurable. A separate high-grade universal calibrator further enhances the practical value of this unit. As an example, the calibrator facilitates the simulation of output signals from thermocouples and the measurement of the resulting output signal from a connected transducer.

Various control loop components such as transducers, control valves and controllers are available as accessories. They are inserted in the calibration station frame and connected by way of the supplied hoses and cables.

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## Calibration station



1 AC source 24V, 2 AC source 230V, 3 pressure gauge, 4 potentiometer, 5 controller, 6 ammeter, 7 voltmeter, 8 3-channel line recorder, 9 frame for control loop components, 10 power supply unit, 11 pressure regulator, 12 manometer



Universal calibrator

### Specification

- [1] investigation of transmission behaviour and calibration of electronic and pneumatic control loop components
- [2] sending and measuring pneumatic and electrical signals
- [3] 3 pressure regulators with manometers
- [4] adjustable power supply unit as DC voltage source
- [5] 2 switchable AC voltage sources with differing voltages
- [6] 3 digital pressure gauges with differing measuring ranges
- [7] 2 adjustable potentiometers
- [8] freely configurable industrial controller
- [9] digital voltmeter
- [10] digital ammeter
- [11] 3-channel line recorder with freely selectable measuring ranges
- [12] separate high-grade universal calibrator for voltage, current, temperature and resistance

### Technical data

3 pressure regulators

- 1x 0...2bar

- 2x 0...8bar

Power supply unit

- voltage: 0...30VDC

- current: 0...5A

2 AC voltage sources

- 24VAC

- 230VAC

2 potentiometers

- 0...100Ω

- 0...500Ω

Measuring ranges

- pressure:

- ▶ 0...0,6bar

- ▶ 0...2,5bar

- ▶ 0...10bar

- voltage: 0...20VDC

- current: 0...20mA

230V, 50Hz, 1 phase

230V, 60Hz, 1 phase

LxWxH: 1520x750x1800mm

Weight: approx. 220kg

### Required for operation

Compressed air connection: 6...8bar

### Scope of delivery

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

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### Optional accessories

#### Transducers

080.30001	RT 300.01	Pressure transmitter, pneumatic
080.30002	RT 300.02	Differential pressure transmitter, pneumatic
080.30003	RT 300.03	Square root extractor, pneumatic
080.30006	RT 300.06	Current-to-pressure converter
080.30020	RT 300.20	Pressure transmitter, electronic
080.30021	RT 300.21	Differential pressure transmitter, electronic
080.30027	RT 300.27	Transmitter for Pt100, electronic
080.30028	RT 300.28	Transmitter for thermocouple type K
080.30029	RT 300.29	Transmitter for thermocouple type J

#### Control valves

080.30014	RT 300.14	Pneumatic control valve with pneumatic positioner
080.30025	RT 300.25	Pneumatic control valve with electro-pneumatic positioner
080.30026	RT 300.26	24VDC motorised valve with resistance teletransmitter

#### Controllers

080.30009	RT 300.09	Pneumatic PID controller
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