

# HL 108

## Domestic heating circuit training panel



### Learning objectives/experiments

- familiarisation with a central heating system and its components
- hydronic balancing of radiators
- function and operating behaviour of a circulating pump
- function and operating behaviour of a heating controller
- function and operating behaviour of a four-way mixing valve

### Description

- **trainer on heating systems and plumbing**
- **function of a central heating system**
- **high level of relevance to practice due to use of commonly available commercial components**

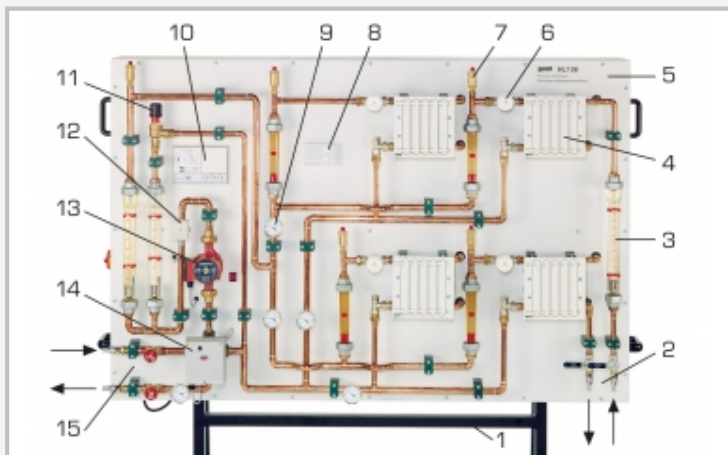
A pump circulates water through four radiators. The temperature of the radiators is set using thermostatic valves.

A digital controller keeps the room temperature constant by driving the four-way mixing valve. This valve sets the temperature of the boiler return flow and the feed flow. Cold water connections enable the heat generated to be dissipated.

The differential pressure across the pipe system is limited using a relief valve. Temperatures can be read on bimetallic thermometers.

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1 frame, 2 cold water connections, 3 rotameter, 4 radiator, 5 panel, 6 thermostatic valve, 7 bleed valve, 8 room temperature sensor, 9 bimetallic thermometer, 10 heating controller, 11 overflow valve, 12 feed flow temperature sensor, 13 pump, 14 mixing valve, 15 boiler water connections

### Specification

- [1] trainer for heating engineering
- [2] heating controller with feedback of the feed flow temperature
- [3] four-way mixing valve DN 20
- [4] circulating pump
- [5] 7 rotameters
- [6] 4 plate heat exchangers as radiators
- [7] 5 bimetallic thermometers
- [8] 2 cold water connections DN 15
- [9] 2 water connections for boiler DN 15
- [10] 1 differential pressure overflow valve

### Technical data

#### Pump

- power consumption: 60W
- max. flow rate: 60L/min
- max. head: 4m

#### Radiator

- plate heat exchanger with 8 plates
- capacity: 3kW

#### Heating controller with feedback of the feed flow temperature

- inputs: 2 temperature sensors

#### Measuring ranges

- temperature: 0...100°C
- flow rate:
  - ▶ 4x 0...400L/h
  - ▶ 1x 0...1000L/h
  - ▶ 2x 150...1600L/h

230V, 50Hz, 1 phase  
 230V, 60Hz, 1 phase  
 LxWxH: 1800x700x1780mm  
 Weight: approx. 100kg

### Required for operation

cold and hot water connection: 1700L/h

### Scope of delivery

- 1 trainer
- 1 manual