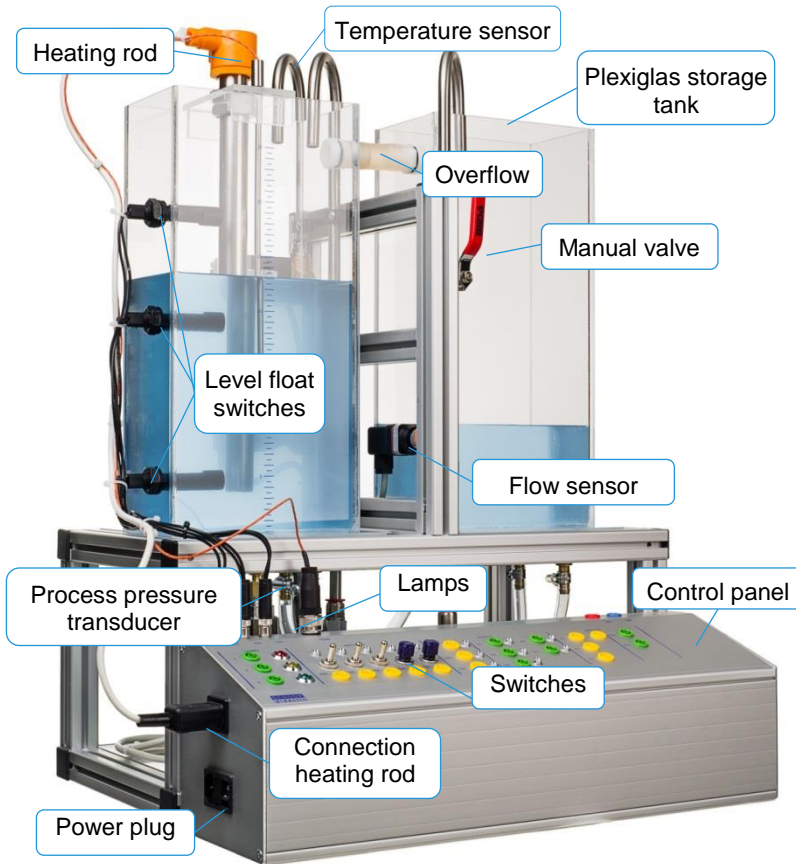


# WinErs-Didactic: Workstation LC2030

**Workstation LC2030** for open- and closed-loop control: Storage tank for use in training of binary control engineering and Level, Flow, Temperature and Pressure Control.



## Equipment LC2030:

- 1x Rack for control panel,
- 2x Plexiglas storage tanks, 110 x 200 x 400 (D x W x H [mm]), capacity approx. 8 L,
- 3x Radial pump, max. flow rate 270 l/h
- 2x Valve for manual flow rate adjustment,
- 3x Level float switch,
- 6x Quick-release connector, for automatic closing for pump connection,
- 1x Quick-release connector with drainage hose to empty tanks,
- 1x Operation LED (green),
- 1x Signal LED (yellow),
- 1x Error LED (red),
- 3x Operation switch,
- 2x Push-button switch.
  
- 1x Centrifugal pump with adjustable flow rate, max. 230 L/h (substitutes one radial pump),
- 1x Frequency converter for pump control,
- 1x Process pressure transducer for level measurement.

Dimensions: 520 x 720 x 450 (D x W x H [mm]), Weight: app. 26.00 kg

The workstation LC2030 has been designed for use in control engineering.

Six closed-control circuits are available: level control with controllable pump, flow control with controllable pump, pressure control with controllable pump, level control with controllable valve, flow control with controllable valve and temperature control.

Three pumps, three switches for float control, three buttons, two push-buttons and three lamps (red, yellow, green) are available for control purposes. Buttons at the control panel can be used for tasks such as emergency stop, process start and stop, interruption etc. Message lamps allow the identification of errors, faults and process conditions. By the colors of the lamps also traffic light circuits can be implemented.

On the panel all signals are available as standard signals 0 (2) - 10V for analogue or 24V for binary signals via laboratory sockets (4mm), so that the workstation can be connected to each control unit (PLC, industrial controller, etc.).

## Optional extensions for LC2030:

- Closed Loop Level Control via Inflow Rate
  - 1x Control Valve with control unit (0-10V).
- Closed Loop Control, Flow Control with Control Valve
  - 1x Flow meter (0-10V).
- Closed Loop Flow Control with Centrifugal Pump
  - 1x Flow meter (0-10V),
  - 1x Valve for manual flow rate manipulation.
- Closed-Loop Temperature Control
  - 1x Temperature probe, PT100 with signal converter (0-10V),
  - 1x Heating rod,
  - 1x Circulation pump.
- Cooler for temperature control
  - 1x Cooler,
  - 2x Ventilators.
- Closed-loop pressure control
  - 1x Pressure sensor (0-10V),
  - 1x Valve for manual flow rate manipulation,
  - 1x Manual manometer.

# Software LC2030 Training

## LC2030 Training

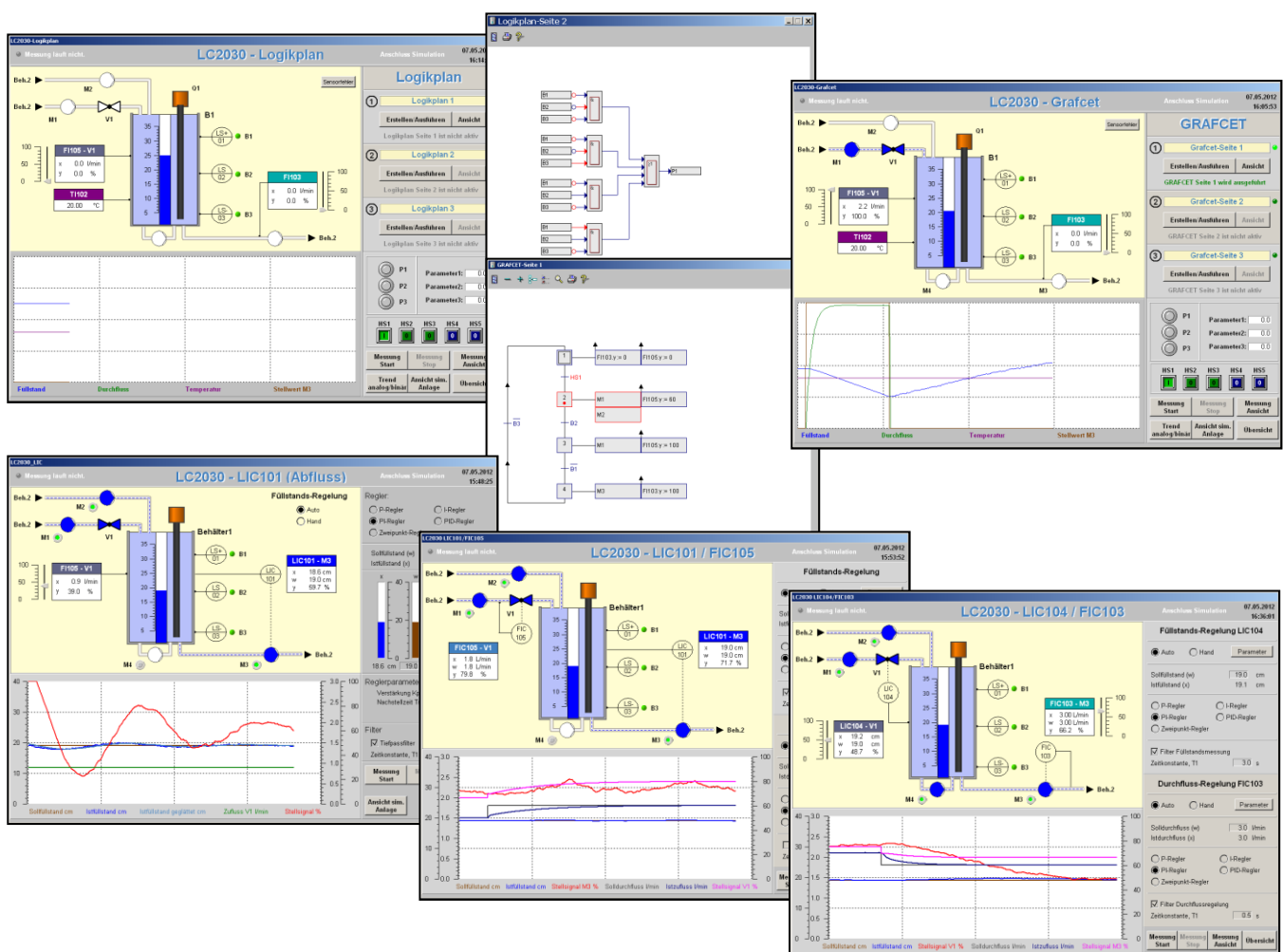
With the LC2030-Training, tasks from the field of open-loop and closed-loop control technology can be edited. The LC2030-Training allows you to work with the real workstation LC2030 or with an integrated simulation of the workstation.

In closed-loop control level, flow, pressure and temperature control are available. The systems can be controlled with standard controllers P, I, PI, PID and two-point controller. All control parameters may be chosen freely.

All signals are graphically monitored via trend displays. The integrated measured value acquisition records the signals and provides comprehensive evaluation options.

It is also possible to create open-controls using GRAFCET- or Logic-plans for different exercises. The control can be tested online with the real station or the integrated simulated training station and the flow of the plans can be monitored graphically.

The connection between PC and workstation LC2030 is via **I/O-Box 4488**.



## WinErs-Laborversion

The WinErs laboratory version is a development software for the realisation of automation projects. Controls are created graphically with block structures, logic diagrams or GRAFCET plans. Personal operation surfaces can be created with the process visualization. The WinErs laboratory version is connected to the workstation via **I/O-Box**.

